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ORIGINAL ARTICLES.

CLINICAL REPORT OF CASES OPERATED UPON AT THE INDIANAPOLIS CITY HOSPITAL.

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The histories of the greater number of the cases included in this paper, were presented to the Marion County Medical Society at different times. A few of them excited such interest and comment, that the writer thought it might not be an unprofitable task for him to collect the histories and present them as a whole to the profession. While the number of cases is not large (but twenty-three in all), they present quite a variety of pathological conditions and of operative methods.

The results were uniformly good, except in two instances. In one case of procidentia, our efforts were a failure, and in one instance of vaginal hysterectomy, death followed in a few hours after the operation.

With few exceptions, the operations were done in the amphitheatre, in the presence of the students of the medical colleges of the city. The others were performed in the surgery of the hospital, in the presence of, and with the assistance of the house staff of physicians.

The instruments, ligatures, sponges and dressings were cared for by the nurses. After thoroughly washing the instruments, they were, just before each operation, boiled for one-half hour, and placed in sterilized water, or a 1 per cent. carbolic solution. The silk for ligatures and sutures was boiled before using, and laid in a separate dish containing a carbolic solution. The catgut was taken directly from the alcohol and juniper oil mixture, and the silkworm gut from a carbolic solution. Sponges were used in all the operations. Only the best bleached, aseptic sponges were bought from the instrument house. When brought to the hospital, these sponges were placed in jars containing a carbolic solution (1 to 60). When needed, they are taken from this solution, washed in sterilized water, and placed in the solution used during the operation. After operations, sponges used in cancer, syphilitic or septic cases, are destroyed.

The care of the sponges, after use in a simple case, is as follows: First, they are thrown into a solution of liquor potassa, and allowed to remain a few minutes, for the purpose of dissolving the blood clots. They are then thoroughly washed, and passed through a bichloride solution (1 to 2,000), and placed in the carbolic acid solution, there to remain until needed again. As dressings, we used iodoform and bichloride gauze, and plain absorbent cotton. The patients were prepared for every operation, however simple. Laxatives were given daily for two or three days prior to the operation, and the last day a purgative dose of salts was administered. Two or three thorough baths were given by the nurse, and if a plastic operation upon the perineum or vaginal walls, frequent douches of bichloride solution (1 to 10,000) were given.

Previous to abdominal sections, besides thoroughly cleansing the skin upon the abdomen, towels wrung out of a bichloride solution were laid over the abdomen for several hours. As a rule, ether was used as an anæsthetic.

Lacerations of the Cervix Uteri.—Of the many patients having this pathological condition, but four presented symptoms of sufficient gravity (in our judgment) to demand an operation. The symptoms were hyperæsthesia of the vagina and vulva, disorders of menstruation, persistent endometritis with erosions of the mucous membrane of the cervix, subinvolution of the uterus, and reflex symptoms which could not be attributed to other causes.

These four patients had had prolonged and ineffectual treatment for the cure of the erosion. The operation, in all cases, yielded satisfactory results, both in respect to immediate union and subsequent improvement in the general health of the patients.

In one instance, interrupted catgut sutures were used with entire success. In another case, silk was employed for sutures, and good union resulted. In two cases, silkworm gut was used.

In three cases, the perineum was closed at the same time, and the sutures were removed at the end of eighteen days. In both cases, union was perfect. In one case, there was an erosion and cystic degeneration about the os that had resisted local treatment. The dissection was carried around the os so as to remove all the eroded tissue. After the laceration had been closed by the sutures, a medium sized, soft rubber drainage tube was carried into the cervical canal through the internal os, and about 1½ inch of the tube left hanging down into the vagina. A silk thread was attached to the lower end of this tube and brought out at the ostium vagina, so that at the end of four days the tube was easily removed. On account of having done a perineorrhaphy at the same sitting, the cervical stitches were not removed until the end of two and one-half weeks, when union by first intention was found to have taken place, leaving a good patulous os, which two months later was found to be still of good size, every evidence of inflammation of the cervical tissue having disappeared. This method of dealing with intractable erosions accompanying lacerations of the cervix, the operator has found, in many other cases, to be entirely satisfactory.

Lacerated Perineum.—In six cases, operations were done for the relief of this condition. In two of them there was simply an incomplete laceration of the perineum with rectocele. In one of these cases, Tait's flap-splitting operation was done with excellent re-

sults. In the other, Schroeder's operation was done with equally as good results.

In two other cases, besides laceration of the perineum and rectocele, there was also laceration of the cervix. The double operation was done in both instances. In three the method described by Skene[1] was employed, and in each the result was the cure of the rectocele, and the formation of a good perineum.

In two other cases there were procidentia and prolapsus of the vaginal walls, which presented so many points of interest, that I am constrained to give the treatment in detail.

Mrs. B., aged 45 years, had complete prolapsus of the uterus. The anterior and posterior vaginal walls were also prolapsed. The bladder was dragged down, and spread over the anterior surface of the uterus so that, when partially filled, a pouch containing urine protruded from the vagina.

The rectal pouch was so much distended and dilated that, when the patient lay upon her side, and a finger was introduced into the rectum, it could be passed upward, then forwards into a dilated portion of the rectum, which protruded out of the vagina behind the uterus. As usual in such cases, there was hyperplasia of the uterus. Pessaries had been used in vain.

The cervix was amputated in the usual manner. The vaginal mucous membrane was separated from the cervix by an incision all around it, and pushed upwards as in high amputation. The cervix was then amputated near the internal os, and a modified Hegar's method employed in covering the stump. Upon removing the sutures at the end of eight days, it was found that union had taken place by first intention. A few days after, Hegar's operation upon the posterior vaginal wall was done. By these combined methods, we were enabled to cure the procidentia, the patient leaving the hospital at the end of seven weeks.

In the remaining case, the patient had already submitted to several operations, one upon the cervix and two upon the vaginal walls. There was procidentia, but not to so marked a degree as in the former case. When the uterus was pushed back into the vagina, it was observed that the vaginal tube had been shortened by the previous operations. As the organ was not greatly hypertrophied, it was thought best to shorten the round ligaments by Alexander's operation, which was done. Some difficulty was experienced in finding the ligament upon one side. When found, it was discovered to be small and fragile, but was successfully drawn out 1½ inch and stitched into the tissues about the pubes. The wound healed without suppuration, and the patient kept in bed four weeks. When she first arose from the bed, our work seemed very nearly a success, but in two weeks the uterus had descended so that, when she was on her feet for a time, the cervix protruded at the osteum vagina, demonstrating that our efforts thus far were unsuccessful. Hegar's operation was then done upon the posterior vaginal wall, good union resulting. While this did not cure the procidentia, the patient was able to get about with a moderate degree of comfort when she wore in the vagina a Peaslee's elastic ring pessary.

This case, when viewed side by side with the former one, is very instructive. Why were our efforts successful in one case and not in the other? Simply because we had different pathological conditions present. In the preceding case, the prolapsus was due to a prolapsus of the vaginal walls. The active force was from below. When the cervix had reached the osteum vagina, the shape and weight of the uterus favored the dilatation of the vaginal outlet and further displacement of the organ. This unfavorable shape, and a part of the weight of the uterus, were made to disappear by the removal of the lower segment of the organ. The operation upon the posterior vaginal wall prevented a future prolapsus of that tube.

In the last case the prolapsus of the uterus was due to pressure exerted from above combined with insufficiency of the uterine supports. The staying, supporting powers of the broad and utero-sacral ligaments were incompetent, and the supporting power of the cellular tissue about the cervix had been overcome.

We were unable to obtain the early history of the case, but I am convinced the displacement was caused in the first instance by a heavy lift, a strain, or a fall. Either the round ligaments did not adhere to the tissues to which they were sutured, or else were not strong enough to sustain the weight of the uterus.

Should this patient return to my clinic saying she is unable to work, and is suffering much pain or distress, I shall consider the question of removing the uterus through the vagina.

Neoplasms of the External Genital Organs. — These occurred in a colored woman 28 years old, with a history of syphilis. Of the numerous neoplasms, the largest one invaded the clitoris and the upper portion of the labia. It was pedunculated, the peduncle being about 1½ to 2½ inches at the attachment, smaller, however, between the attachments and the bulk of the neoplasm. The latter was lobular in form and as large as an orange, upon the surface of which were several small superficial ulcers, emitting a very foul odor. Scattered over the labia and perineum were many smaller neoplasms of various sizes and shapes. The operation of removing the largest was a bloody one. The whole mass was quickly excised, the numerous bleeding points ligated with catgut, and the surfaces of the wound immediately brought together with deep sutures. By this means the hæmorrhage was arrested.

When the wound was cleansed the configuration of the external organs was found to be considerably changed. The clitoris and upper portion of the labia had disappeared, and an integumentary arch overhung the meatus, while below, the free margins of the labia overlapped each other. We feared the act of micturation would be interfered with, but such did not prove to be the case. The smaller neoplasms were dealt with in a similar manner to the larger ones. The patient recovered so as to be around the ward in two weeks.

Of the tumor, Dr. A. W. Brayton says: "The neoplasms agree microscopically with the gross clinical characters and history. The group pass from simple hyperplasias of connective tissues and epithelium into caruncles and papillary growths, culminating in the fully developed lobulated, and tuberculated, orange-sized growths, on the clitoris and labia. The latter had become a large fibro-cellular mass suggesting a diffuse fibroma.

The case is a duplicate of Fig. 16, of Dr. R. W. Taylor's series in *New York Medical Journal* of Jan. 4, 1890, on 'chronic inflammation, infiltration and

[1] Skene, Diseases of Women, pp. 140 and 141.

ulceration of the external genitals of women.' The tumors in this case are the result of chronic syphilitic hypertrophy."

Vesico-Vaginal Fistula.—Mrs. Z. gave the following history: As a result of severe attacks of gonorrhœa, a distressing and obstinate cystitis had developed. It had resisted all treatment for two years. What treatment had been employed we could not definitely learn. She stated that she had been treated by several physicians, had taken a great deal of medicine; had had the bladder washed out and medicines injected, yet had steadily grown worse. As a last resort a vesico-vaginal fistula had been established several months previously, which had relieved her to a slight extent, but not enough she thought to compensate for the annoyance and distress occasioned by the constant dribbling of urine. She earnestly desired to have the fistula closed. An examination showed some induration of the labia and other external organs. The vagina had a macerated appearance and was somewhat indurated, but there was no ulceration anywhere to be found, neither was there any active inflammation anywhere to be seen. The fistula was small and situated midway between the meatus and the os. No preliminary treatment was instituted except hot water douches, to which was added boracic acid (3ij to oj).

The operation was a simple one; a strip of tissue one quarter inch in width, was removed from around the fistula. Six sutures of silkworm-gut were used, three deep, and three superficial. A Skene-Goodman catheter was left in the bladder, which was removed and cleansed every eight hours. A small rubber tube was fastened over the external end of the catheter which conveyed the urine to a small earthen dish in the bed. The bowels were moved the third day and every second day subsequently. Vaginal douches of boracic acid solution were given regularly twice a day. On removing the stitches on the tenth day perfect union had taken place.

The catheter was discarded and the patient allowed to void urine in the natural way. At first there was a frequent and irritating desire to micturate, but it gradually became less frequent. She left the hospital in two weeks after the stitches were removed. At that time she was able to retain her urine one hour, and sometimes, two hours. The urine contained no blood and but little mucus.

She did not complain of much pain. Unless she greatly overstated her sufferings before the fistula was formed, the drainage was beneficial. I have not been able to see the patient since she left the hospital, so do not know her present condition.

Two Cases of Amputation of the Mammary Gland.—Mrs. J., aged 35 years. Mother of one child, 5 years of age. About one year ago noticed a small tumor in the breast. When first noticed it was not larger than a hickory nut: was hard, tender and movable, but deap seated. It gradually grew and became nodular and painful. When first seen by the operator it was the size of a large orange, apparently involving nearly the whole gland. Irregular in outline, nodular and flattened upon the under surface, it was attached to the skin, but movable. The axillary border of the nipple was retracted, and two small areas of skin were attached to the upper surface of the tumor. The tumor was quite painful, and one axillary gland was found involved. I did not hesitate to pronounce it a case of carcinoma and advised extirpation of tumor and gland. The operation was done at city hospital Feb. 5th, 1891. The entire breast was removed. The line of excision was extended toward the axilla, where the enlarged glands were searched for. One only was found, which was as large as an almond. It was removed. A short drainage tube was inserted at each extremity of the incision. The wound was closed by deep silkworm-gut, and superficial catgut sutures, and dressed by dusting iodoform along the line of incision and covering this with a layer of iodoform gauze, then by an abundant supply of absorbent cotton and finally a rubber bandage of aseptic gauze. This dressing was removed the second day, the drainage tubes removed and the dressing reapplied. The dressings were not disturbed again until the eighth day, when they were taken off and the stitches removed. Union by first intention had taken place the whole length of the incision, except where the drainage tubes were inserted. Again the dressings were applied and allowed to remain one week when the wound was entirely well. Then only a thin layer of gauze held in place by a light bandage was applied.

The patient went to her home in a distant part of the State at the end of three weeks, and I have not since seen her.

Cystic Tumor of Mammary Gland.—Mrs. K., aged 28 years, well nourished, the mother of several children, the youngest of which was eighteen months of age. The tumor had been pronounced malignant and she came to the hospital to have it removed. An examination of the breast revealed a tumor about the size of a hen's egg, located in the substance of the gland, midway between the nipple and axillary border. It was deep-seated, rather hard, movable, and not nodulated. Pressure upon it caused a sanguinolent fluid to discharge from the nipple. So profuse was this discharge that the patient stated she was compelled to wear cloths over the nipple to protect her clothing from the discharges which occurred every day. The nipple was not extracted, nor was there swelling of the superficial veins. She suffered but little pain, and no impairment of general health. The tumor, which she thought due to an injury, had developed within six months.

I diagnosticated the tumor an adenoma, and removed it in Nov., 1890. A thick layer of adipose tissue overlay the gland. By an accident the tumor was cut into, when there was a gush of sero-sanguinolent fluid. Under the circumstances it was difficult to estimate the amount of this fluid, but there was not less than an ounce nor more than two ounces. The tissues about the cyst walls were so hard the operator thought he was dealing with an adenoma which had undergone partial cystic degeneration. He therefore decided to remove the whole gland, which was done. The wound was closed and dressed in the same manner as in the preceding case. There was slight suppuration in the lower angle of the wound; the temperature reached 101°F., the third day, then fell to normal and remained so until recovery was complete. She left the hospital in three weeks, well.

Dr. Brayton, who witnessed the operation and examined the specimen, makes the following statement: "In this case the microscopical examination confirms the clinical history. There was a well marked inflammatory wall surrounding the cyst, which probably arose from an injury. The tumor on excision and examination exhibited none of the character of adenoma, carcinoma, or fibroma. The tumor proved to be

a benign lacteal cyst maintaining through the ducts its connection with the nipple."

Ventral Hernia.—Six months previously the patient had had the uterine appendages removed, by the writer, for chronic inflammation of the appendages with adhesion. Her recovery had been a speedy one. The union in the abdominal incision had been by first intention, except at the lower angle, where a finer cicatrix had formed. She left the hospital eight weeks after the operation, and went to work, leaving off the abdominal bandage. A few months later she came to me, complaining of pain and weakness in the lower part of the abdomen, where a hernia was found. She went to the hospital, and in due time was operated upon for radical cure of the hernia. It was small and easily reduced. Over the prominent point of the protrusion the scar tissue widened so that it was one-half inch across, and very thin. An incision was made through this and the tissues divided through to the hernial opening. This opening readily admitted the tip of the index finger. The edges of the ring were pared down to the peritoneum, which was not opened. Three rows of stitches were introduced, the first extending from the skin one-quarter inch from the line of the incision, and were passed through all the tissues to the bottom of the opening, but not including the peritoneum; they were then passed upward from the bottom of the wound through all the tissues, emerging through the skin at a point corresponding to the points of entrance. Of these there were three. The second row of stitches were of catgut, and included only the muscular and fascial tissue. The third and superficial row, four in number, included only the cutaneous and sub-cutaneous tissues. The catgut stitches were tied first, then the deep suture (silkworm-gut), and lastly the superficial ones. The sutures were removed on the ninth day, when perfect union was found to have taken place. The patient begged to leave her bed on the tenth day, but was not permitted to do so until the end of two weeks. She wore continually a firm, well-fitting abdominal bandage. Three months subsequent to the operation there was no evidence of the return of the hernia.

Pyosalpinx and Chronic Peritonitis.— Laparotomy and removal of tubes and ovaries; irrigation and drainage; recovery. Miss B. B., aged 24 years, was admitted to hospital during an attack of pneumonia. Two weeks later complained greatly of pelvic pains. On examination found an irregular mass upon either side of and posterior to the uterus. Pronounced these as distended tubes. A few weeks later, when she had sufficiently recovered from her acute sickness, the appendages were removed. Both tubes were found distended with pus and the ends occluded. The ovaries were found in a state of parenchymatous chronic inflammation. There was also chronic peritonitis, limited chiefly to the pelvis and lower part of abdomen. Irrigated thoroughly and drained. The patient made a quick recovery, both from the effects of the operation and from the chronic peritonitis. I saw her at the end of two months, when she was apparently well.

Ovarian Tumor.— Mrs. H., aged 49 years; widow one year; married at 40. Menopause was established at 47. She enjoyed fair health until within the last few months, but had noticed bloating of the abdomen for some months. She was taken suddenly sick eight weeks previous to my seeing her, and as this was followed by an attack of peritonitis, rupture of the cyst probably took place at that time. Operated Dec. 12, removing a 38-pound tumor. There was a large rent in the anterior wall of the cyst, while the lower abdominal cavity was filled with a colloid material. Many soft and extensive adhesions were found; more extensive and firmer within the right inguinal region. A large glass drainage tube was inserted and allowed to remain for twenty-four hours. Temperature reached its highest point, 101⅕°, and pulse 136, upon the third day. Upon the eighth day she seemed to be convalescent, but upon the twelfth day the temperature began gradually to rise, when it ranged from 99° to 100.6°. The tongue became dry and furred and the countenance anxious, but there was no tympanitis. On the fifteenth day the patient seemed very sick, and I became convinced that there was pus forming at some point, and upon searching found an accumulation in the pelvis, upon the right side. I could outline a distinct abscess with tense walls bulging toward the rectum, the lower portion of which could be outlined by vaginal examination. Distinct fluctuation was elicited by examination with one finger in the rectum and another in the vagina. A trocar with canula was thrust into the abscess through the vagina, an aspirator attached, and little more than a pint of thick pus drawn off. The cavity of the abscess was then washed out with a 1 per cent. solution of carbolic acid. At this time —8:30 A. M.—the pulse was 112 and the temperature 100°; at noon the temperature was 100⅘°, pulse 120; at 5 P. M., temperature 99°, pulse 103; at 9 P. M., temperature 98⅖°, pulse 96. From this time forward the temperature never went above 99°, though the pulse was several times as frequent as 120 per minute. The patient made a good recovery. A few days after the evacuation of the abscess there could be found upon digital examination no trace of indurated tissue in the pelvis.

High Amputation of Cervix Uteri for Epithelioma.—This patient was a young married woman, who four months previously had been delivered of a healthy child. There was an extensive laceration of the cervix. The epithelioma sprang from the cervical endometrium, involving the anterior lip of the cervix. A microscopical examination of the removed portion of the neoplasm pointed unmistakably to its malignancy. The cervix was removed at its junction with the body of the uterus. We experienced some little difficulty in arresting the hæmorrhage from the uterine artery upon one side, but otherwise the operation was quickly and easily executed. The mucous membrane of the vagina and the stump were stitched together so that the stump was nearly covered by the flaps. Union by first intention took place. For two months the patient was well, when she began having irregular sanguinous discharges and much pain, intermittent in character. A few weeks later an examination showed the stump apparently healthy, but the wall of the vagina extensively invaded. Ulcerative processes beginning in a line reaching from a distance of one-half inch in front of the os forward to near the meatus urinaris. This operation, though carefully done and all of the cancerous tissue thoroughly removed, gave but a two months' respite. Does another such case present itself in which there shall appear as great evidence of malignancy, I shall not stop short of the removal of the entire organ.

Large Fibroid Tumor of Uterus.—Mrs. W., aged 29 years; colored. She had noticed a tumor in the lower part of the abdomen for four or five years, which had gradually grown in size until it reached from low down in the pelvis to a point one inch above the umbilicus. The tumor had developed so low in the uterus that the cervix was very nearly obliterated. As no pedicle could be formed, permitting extra-peritoneal treatment, it was decided to remove the appendages from the uterus. An incision was made, extending from a point one inch above the umbilicus in the median line down within two inches of the pubes. The tumor was exposed and search made for the ovaries and tubes. These not being found, the incision was enlarged above and below, and the tumor lifted out of the abdominal cavity, when we were able to find the right ovary and tube. The uterine end of the latter was enveloped and altogether involved in a small fibroid which sprang from the uterus. This mass, together with tube and ovary, was removed after ligating the tissues, uniting them to the uterus with chain-stitch ligatures. The left ovary and tube could not be found. The bladder was adherent to the under surface of the abdominal wall, just above the pubes, and was accidentally cut through the serous and muscular coats. The length of the incision being about one and one-half inch. This incision was sutured with a continuous catgut. A careful toilet was made of the peritoneum, after which the tumor was returned to the abdominal cavity. Two gallons of hot sterilized water were poured into the cavity and allowed to run out. No drainage was employed. The patient made a speedy and uninterrupted recovery. On the 11th of May last I saw the patient and examined the tumor. I found it much smaller, probably about one-half the size it was when operated upon. She had menstruated but once since she left her bed, two and one-half months previous. She expresses herself as feeling strong and well.

Adenoid Cancer of the Uterus.—Vaginal hysterectomy. Death, of hæmorrhage, ten hours after the operation. Mrs. G. G., aged 27 years. Had been an invalid nine years. Confined to her bed most of the time.

Nine years ago she gave birth to her first child. Soon after this confinement her physician informed her she had a cancer of the neck of the womb. This he thought to destroy by the application of caustics.

One year ago she gave birth to a well-developed child, and had nursed until the day of her arrival at the hospital, Feb. 23, 1891.

I examined her the day of her arrival. She was much emaciated, scarcely able to sit up. She complained of a continual burning pain through the pelvic regions, and much irritation of the bladder. She had not menstruated since the birth of her last child. There was a slight, thin vaginal discharge, which irritated the external organs. A physical examination showed the vagina large and relaxed, the uterus movable, of normal size and in normal position. There was an absence of the vaginal portion of the cervix. The cervix could be felt in the center of the vaginal vault, and had an excavated feeling and appearance, Within the os could be seen a small, irregular pouting mass of a deep red hue, which bled upon touching it with the probe. A portion of it was removed and submitted to Dr. Hessler for microscopical examination. He reported two days later that he had found all the characteristics of adenoid cancer in the specimen.

The patient and her husband desiring it, the uterus was removed through the vagina. The operation was not difficult, requiring but forty minutes for its completion. Forceps were used, two to each broad ligament; two others were required to close bleeding points. There was but slight hæmorrhage during the operation, the vagina being dry where the tampon was placed.

The patient was put to bed in good condition and rallied well. Five hours after the operation, upon my return to see the patient, the house physician informed me he had just discovered the patient was bleeding. Upon examination there were found slight signs of hæmorrhage, and upon removing the cotton from around the forceps, the lower portion of the vagina could be seen filled with clots of blood. The patient showed signs of exhaustion, but the bleeding was still going on. Though I appreciated the danger from shock in opening the vagina and attempting to arrest the hæmorrhage, hasty preparations were made to do so.

The patient was brought across the bed, the cotton removed from around the forceps and the vagina tampon withdrawn. The forceps were pressed aside so that the way was clear to enter the vagina. The clots were removed by the finger, while two fingers of the left hand depressed the posterior vaginal wall, the blood was carefully mopped away with cotton probangs.

Fortunately the bleeding point was found. It was not in the broad ligament stump, but in the tissues severed from around the os. The tissues had pulled out from the end of the forceps, leaving the open end of the artery free. I saw I could not ligate this small vessel without removing the forceps. This I feared to do lest other points would be exposed and more bleeding follow.

The only thing to do was to cauterize with thermocautery, which was done. An iodoform tampon was introduced and the patient changed in bed and made as comfortable as possible. Our efforts, though not continuing over ten minutes, had added greatly to her exhausted condition. For a time she was almost pulseless. Under the influence of rest, stimulants, and external heat she partially rallied for a time, then gradually sank until her death at 2 A.M., ten hours after the operation. No hæmorrhage occurred after the cautery. Hæmorrhage is one of the chief causes of death resulting from a vaginal hysterectomy. The forceps giving the trouble was a large one with a short bit, and hung loosely when not stayed. I do not believe hæmorrhage occurs any more frequently from the use of the forceps than the ligature. I have used them several times since the above operation without secondary hæmorrhage, the patients all recovering, but have not used them without the following precautions: For clamping bleeding points in the tissues nearest the vaginal outlet only, small forceps are used and these are tied to the large clamps, which include the broad ligaments.

Cystic Tumor of Anterior Vaginal Walls.—The patient, Miss H., was a subject of valvular heart disease. The tumor was oblong about the size of a hulled butternut. The centre of the tumor was to the right of the median line, overlapping the urethra. It had been mistaken for a urethrocele, but from this it was easily differentiated. The tumor was elastic and

fluctuating, and did not diminish by pressure. A sound introduced into the urethra found no pocket between the meatus and bladder. On the contrary it pursued a normal course and direction until the bladder was entered. On account of the acute sickness of the patient no attempts at radical cure were admissible. So we aspirated the tumor, drawing off one-half ounce of the colorless fluid. The patient died of the effects of paralysis and heart disease a few weeks later. At the time of her death the tumor was refilling.

Hypertrophy and Elongation of the Infra-Vaginal Cervix.—Amputation with knife and scissors. Mrs. P. P. was aged forty years; had never borne children. Stated she had had "falling of womb" for fifteen years, and that it had been gradually becoming worse, until the womb protruded so far as to make walking painful. In other respects the patient appeared well, fully nourished, and able to do the housework for a large family.

Upon examination the os was found protruding from the ostium vagina about one inch. The examining finger was easily introduced into the vagina both before and behind the cervix. The cul-de-sac was normal, there was no prolapsus of the bladder, and but little if any descent of the body of the uterus. It was clearly a case of infra-vaginal elongation of the cervix uteri with hypertrophy.

The sound passed into the uterine canal five inches. The protrusion of the cervix was greater during menstruation. Menstruation, though profuse, was never painful. The patient was placed upon the side and a Sims' speculum introduced. The cervix was amputated with knife and scissors. Excessive hæmorrhage was prevented by an elastic ligature tied around the cervix at the vaginal junction, while the cervix was severed just below the ligature.

The sutures were placed after Hegar's[1] methods, the parts irrigated with a hot bichloride solution (1:1000), and a vaginal tampon of iodoform gauze left in the vagina. There was but little loss of blood. The patient reacted well, and made a comfortable and easy recovery.

On the ninth day the sutures were removed, when perfect union was found to have taken place. The amputated portion of the cervix was three inches long, and one and three quarters inches in diameter. I have examined this patient several times since the operation. The lower end of the stump is three inches above the ostium vagina, and the symptoms of prolapsus have entirely disappeared.

Recto-Vaginal Fistula.—B. A., colored; aged 50 years. Patient much emaciated, had suffered from syphilis for several years. Complained of weakness, and stated that "passages from bowels come from wrong opening."

A physical examination showed syphilitic ulcerations about the external genitals, and a large recto-vaginal fistula. Two or three fingers could be readily passed from the rectum through the fistulous opening into the vagina. The patient stated that there had been soreness in that region for a year and that during the last six months she had noticed the fecal passages coming through the vagina. The tissues about the opening were ulcerated, and beyond the ulceration there was much induration. For obvious reasons the idea of a plastic operation could not be entertained. The parts were thoroughly cleansed and the ulcerated surfaces touched with carbolic acid and dusted with iodoform. A copious rectal injection of hot water was ordered once a day, and a bichloride (1:10000) vaginal injection twice a day. Every third day the ulcerated parts were to be touched with carbolic acid and dusted with iodoform. She was ordered to take internally large doses of iodide potassium, and moderate doses of deodized iron, while a liberal diet was directed. This treatment was followed for two months, by which time the fistulous opening had become so small as to scarcely admit the point of a uterine sound. The healing was by granulation, and was gradual. Twice during the time she was under treatment she had quite profuse hæmorrhages from the vaginal ulcerated surfaces. Once when most profuse it was arrested by the administration of a hot vaginal douche. She left the hospital before the healing was complete, yet her general health was much improved, and the feces passed in the natural manner.

Endometritis and Painful Menstruation.— Dilation of cervical canal, curettement of uterus and drainage.

Mrs. B., aged 40 years. She complained of considerable pain in the lower part of the abdomen, vesicle irritation and severe intermittent pains during menstruation. The flow, which was scant, contained small clots of blood, the discharge of which was always preceded by pain. There was a moderate amount of uterine discharge which was irritating to the external organs. She stated that several years before she had been operated upon for the cure of lacerated cervix uteri. A physical examination showed stenosis of the os, and an enlarged and sensitive uterus.

The vagina was washed out with a bichloride solution, the os dilated with Goodell's steel dilator, under the influence of ether narcosis. The uterine cavity was large, the sound moving about as in a small abscess cavity. It was found to contain a small amount of tough mucus. The dilation of the uterine cavity was probably due to the presence of secretions from the uterine mucosa and the accumulation of menstrual fluid from the cavity with difficulty. The cavity was swabbed out with cotton dipped into a bichloride solution. A light curetting was done with a dull curette and the cavity again swabbed out, and a thorough application of carbolic acid made to the mucosa. A soft rubber drainage tube was carried well up into the uterus, and the vagina lightly tamponed with iodoform gauze. The patient was kept in bed four days. The third day the drainage tube was removed and the vaginal douches given twice a day. She made a satisfactory recovery, and remained at the hospital until she had passed through one menstruation, which was painless. The pain in lower part of abdomen had gradually disappeared.

[1] Gordel's Lessons in Gynecology, p. 214. Fig. 74.

OSTEOMALACIA.

BY D. S. LAMB, M.D.,
OF WASHINGTON, D. C.

The following is a description of the skeleton of a woman who died of osteomalacia; it was obtained by me for the Army Medical Museum, where it is catalogued as No. 10,010, Pathological section. Its entire weight is only 2 lbs. 13 oz.

The bones generally show extreme rarefaction; the compact tissue reduced to almost paper-like thinness.

They can be readily cut with knife or scissors, the incision ceasing at the point of the instrument and not splitting the bone beyond; showing the absence of mere fragility. The degeneration is most marked in the bones of the limbs; less so in the head, trunk and pelvis. These in the recent state were more vascular than the bones of the limbs; and of the latter those of the left limb were the more vascular; many bones appeared to be devoid of blood vessels. Medullary cavities and cancelli much dilated; in the recent state filled with fatty and reddish gelatinous matter, in variable proportion. In some places the fat was quite liquid.

The epiphyseal portions of the long bones show multiple fractures; the left femur is the only long bone fractured in the shaft. No sign of repair anywhere. As a rule the periosteum is not thickened, shows no sign of inflammation, and separated quite readily from the bone itself. The tendinous insertions of the muscles separated from the bones more readily than usual. Some of the bones of the limbs floated in water and even in the benzine in which they were degreased.

The cranium is generally thinned but not noticeably softened; sutures still well marked. There is a curious heaping up of bone in the bottom of the right middle cerebral fossa, limited to the greater wing of the sphenoid bone, outside the round and oval foramina. There are also small scooped-out atrophied depressions at the bottom of each middle fossa. Right glenoid cavity enlarged forwards by atrophy of articular eminence; in the left cavity the wasting is less marked. The corresponding condyles of the lower jaw show much erosion, wasting and deformity, most marked on the right side. Alveolar border shows senile atrophy; the right upper bicuspid and third molar teeth not developed; second molar exposed externally by ulceration of alveolar process.

There is firm bony anchylosis of occiput to first cervical vertebra, and of first to fourth vertebræ to each other; some portions of intervertebral cartilages still visible. No fractures of vertebræ, sternum or pelvis; several post-mortem fractures of ribs. No deformity of spine or pelvis, except the common right convexity of the vertebral column. Thorax somewhat flattened antero-posteriorly. Pelvic measurements as follows: Superior strait antero-posteriorly, 4.12 inches; transversely, 5.37; obliquely, 4.75. Inferior strait transversely, 4.87; antero-posteriorly not determined because of accident to coccyx.

All the large joints, and many small ones, show fibrous anchylosis; the articular cartilages destroyed and replaced by red connective tissue. Both ends of clavicles atrophied and deformed. Lower ends of humeri anchylosed to bones of forearm; heads of left radius and ulna much wasted and deformed. Heads of femurs anchylosed to acetabula; heads of tibiæ to condyles of femurs; left patella to femur; lower ends of tibiæ to astraguli. Some of the toes dislocated at metacarpal joints. Weight of bones of left foot, including malleoli, half an ounce.

The history is brief, but the best obtainable. The patient was a white woman, single, and about 69 years old at death. She had been sick twenty-six years, and confined to bed about twenty-one years. Said to have had good health until the winter of 1863–4, when she went to Camp Parole, Va., to nurse a sick brother, a soldier, and afterwards remained as a volunteer nurse. She suffered much from exposure to cold, dampness and insufficient food, said to be due to a Confederate raid. She had acute rheumatism of the shoulders, knees and ankles. In 1864 she went to Fairfax Seminary Hospital, still as nurse. Still suffered from rheumatism, and the swelling of the limbs was very troublesome. In 1865, she was appointed a clerk in the Treasury Department, Washington, but became in 1867 so physically incapacitated for work that she was compelled to resign. In 1868 she was admitted to Columbia Hospital for Women, Washington, with a diagnosis of rheumatism. All the smaller joints and the knees were enlarged and tender; she was unable to stand or move, but could sit erect. The muscles of the thighs were contracted, and the knees flexed.

Dr. Mary Parsons, of Washington, for whom I made the post-mortem examination, and who gives this history, was called to see her in the summer of 1883, because of fracture of right leg below the knee, from careless handling in removing the stocking. She was lying nearly motionless; had only slight forward motion of the head and some motion of the wrists. Very little pain; appetite very good; digestion very good, and she slept well. She was very intelligent, well read, quick and eager in discussion, pronounced in opinion, interested in current events; and altogether a "jolly little woman." Motion eventually ceased entirely. About July 1, 1889, the left femur was fractured in the lower third, causing excessive pain. She died from exhaustion July 10.

I made the post-mortem examination, with the following results: Her height was 4 feet 6 inches. The skin, where unbroken, had a yellowish, greasy appearance. Abundance of fat in loose connective tissues everywhere; muscles pale; left thigh showed general venous congestion, corresponding to an oblique fracture of the femur. Fingers misshapen; legs in the position of backward dislocation of the tibia.

The dura mater was strongly attached to the calvarium along the longitudinal groove; brain appeared normal, but the nerves were seemingly enlarged; blood-vessels calcareous and very brittle. The upper half of the cervical spinal cord corresponding to the anchylosed vertebræ appeared normal, but was found, on microscopical examination by Dr. W. M. Gray, of the Museum, to show sclerosis and some infiltration, due to inflammaion; remainder of cord not examined.

The conical papillæ of the tongue were enlarged; tonsils atrophied. Thyroid gland much lobulated and firm. Lesser cornua of hyoid bone not coössified. Larynx normal. The lungs showed but little pigmentation; there were coagula in some branches of the pulmonary artery; bronchi dilated; some hypostatic congestion; a few small indefinitely outlined pigmented indurations which microscopically showed "fibroid phthisis." Pleuritic adhesions and patches of pleuritic thickening. Bronchial glands large and pigmented; one of them calcareous. The heart surface showed abundance of fat, especially on right ventricle; firm, almost universal adhesions of pericardial surfaces to each other; substance of heart fatty; left ventricle dilated; fatty degeneration of mitral valve; aortic valve slightly thickened. Aorta dilated; inside diameter just above valve 1, 25 inches; slight atheroma; calcareous deposit around origin of one coronary artery, contracting its orifice.

Liver, 19 oz.; dark; old adhesions to diaphragm;

gall-bladder full of bile. Microscopically the liver showed incipient cirrhosis and red atrophy. Peyer's patches of ileum not visible. Minute ulcers in cæcum, vermiform appendix, and ascending colon. Right suprarenal capsule large; left not observed. Kidneys, each 2.75 oz., somewhat atrophied; capsules readily removed. Abdominal aorta and branches calcareous. Uterus, 2.25 inches long; cervix normal, lips still well marked; abscess in fundus one inch in diameter, distinct from uterine canal, filled with cheesy pus; wall of abscess thin, inner surface rough. Each tube ended, alongside the fimbriæ, in a cyst with chalky wall and yellowish cheesy contents; the right cyst was one inch, the left one-fourth inch in diameter. Ovaries atrophied, smooth. Some pelvic peritoneal adhesions.

The rheumatic condition in this case was well marked. The general adhesive pericarditis, valvular disease of heart, dilatation of ventricle and aorta, and possibly, also, the general calcareous condition of the blood-vessels. Also the fibrous anchyloses of the joints of the limbs, and the bony anchyloses, occipito-atloid and of the cervical vertebræ to each other. The sclerosis and inflammatory infiltration of the cervical cord may have been sequelæ of rheumatism.

The diminished mobility from anchyloses and multiple fractures favored the occurrence of local atrophies, both numerical and fatty, and, in my opinion, also the peculiar condition of the bones usually known as osteomalacia. The fractures naturally followed the atrophy, and were due to sudden movements and careless handling.

The absence of deformity is probably explained by the early occurrence of anchylosis confining the patient to bed.

The old uterine abscess and pelvic adhesions suggest the possibility of gestation having occurred, although the history fails to state the fact.

A PLEA FOR STATIC ELECTRICITY.

BY W. F. ROBINSON, M.D.,
OF ALBANY, N. Y.

The old saying, that history repeats itself, seems to be as true in the field of medicine as elsewhere, and may also be applied to static electricity.

It is not generally known that, in the early part of this century, this agent was used for a series of years, by the celebrated Dr. Golding-Bird, at Guy's Hospital, London. The results were very satisfactory, as the published reports of the hospital show, but after Dr. Golding-Bird's death, the art of applying it seems to have been lost, and so it gradually dropped out of use again.

Another difficulty which static electricity had to contend against in former days, was the great inconvenience attendant upon its use. The old machines had to be kept in rooms heated summer and winter, and if any dampness was allowed to enter, the apparatus became useless for the time being.

The present perfected machines, as manufactured in New York, can be run right through the year, and work, with proper care, even in the dampest weather. The question may be asked, Why use this cumbersome and inconvenient form of electricity, when we have at command the ever ready galvanism?

The answer is twofold. First, static electricity has certain great advantages which galvanism does not possess; and second, results may be obtained with this form of electricity, which no other can give us.

Galvanism must always be applied to the skin directly, and not only that, but the skin must be wet, else the electricity cannot penetrate it. This little circumstance alone often gives rise to no slight annoyance. If you are treating a patient at your office in cold weather, and the underclothing becomes damp from the electrodes, the patient, in going out into the cold air, may catch cold, which will probably more than counterbalance the good which the treatment has done. Another disadvantage is that the galvanic current, in traversing the skin, is very likely to burn it, if the greatest care is not used, and these burns may leave ugly scars.

Static electricity, or Franklinism, has neither of these objections, for, owing to its high tension, it will penetrate both the clothing and skin without difficulty, and it can therefore be administered to any part of the body without disarranging the clothing.

But the advantages of static electricity are specially manifest, in general electric treatment.

The process of general faradization, though of undoubted value in certain affections, is so tedious and unpleasant, both to doctor and patient, that it can never come into very general use. In order to do it properly, it takes very nearly half an hour, and the wet electrodes have to be applied to every part of the surface of the body in turn.

It is very different with Franklinism. By placing the patient on an insulated stool, the whole body may be drenched, so to speak, with the electric fluid, without any inconvenience to the patient whatever.

Now as to the second point: the special value of Franklinism in the treatment of disease.

Take, for instance, an obstinate case of insomnia. Not temporary sleeplessness brought on from accidental causes, and which will yield to most any of the approved methods of treatment, but obstinate insomnia of long standing, where the sufferer goes for months and months without having a good night's rest. I venture to say that in cases of this kind, where the trouble seems to depend on too great sensitiveness of the nervous system to the ordinary irritation of everyday life, there is no known method of treatment which will equal the soothing influence of Franklinism, properly applied.

The obstinate nature of chronic sciatica is well known, and yet this intractable affection will generally yield to a short course of treatment by means of the static spark.

Its action in headache seems almost akin to magical in certain cases. It frequently happens to me to have a patient come into the office complaining of headache, for which I generally give the static douche. Ten minutes of this treatment will often drive the headache away completely.

In lumbago, and in certain forms of rheumatism, where the principal seat of the pain seems to be in the back, this kind of electricity is remarkably efficacious, much more so than either galvanism or faradism.

In all forms of neuroses, and in cases where it is desirable to give general electrization, I am convinced that this form is superior to any other. On account of its high intensity and great penetrating power, in addition to the tremendous quantity which can be developed by the rapid motion of the plates, this electri-

city permeates the system more completely than any other form, and in cases where the general nervous system is involved and needs toning up, it is much more effective than any other. It has been claimed by the enemies of this form of electricity, that it does not penetrate, and therefore cannot have any therapeutic action, but this seems almost too absurd to discuss. It is this same kind of electricity that splits an oak tree from crown to root, and the idea of its not being able to penetrate the human body, which is an exceedingly good conductor, seems decidedly unlikely, to say the least.

But the discussion of this question would lead us too far, so we will drop it for the present.

It should also be said, that there are certain persons who are unable to stand galvanic electricity, when the current is applied with any power, and in these cases Franklinism is of special value.

I have known cases of rheumatism where the powerful galvanic currents which this disease requires, seemed to have quite an unpleasant effect upon the general nervous system. The very condition of the system, however, which seemed to render it intolerant of one form, made the high tension current all the more available, and the cases (they are quite rare) have responded very satisfactorily to Franklinism.

It should be added that the two forms, galvanism and Franklinism, may be often combined with advantage in the treatment of chronic disease, when the patient remains for a considerable time under the doctor's care.

In short, it may justly be claimed, that an electrician who has at his command a modern static machine capable of generating large quantities of electricity, is much better equipped, and will obtain more satisfactory results in the the treatment of disease, than he who relies on galvanism and faradism alone.

TAPE WORM.

BY JOHN M. BATTEN, M.D.,
OF PITTSBURGH, PA.

I shall only occupy your time briefly with the subject of the tape worms most common to man.

The first case of tænia saginata, or beef tape worm, that came under my observation, was that of a married woman, æt. 40 years, English, mother of eight children. She had been unwell, suffering with the usual symptoms of tape worm, for about two years; the most prominent of which, however, was the passage of segments of the tape worm from her bowels when they were evacuated. I ordered her to fast two days, when I gave her a tablespoonful of the oil of turpentine. At the next evacuation after taking the turpentine, the worm was discharged in its entirety. The worm was about 7 yards in length, and filled an open mouth 6 oz. bottle. The segments of the worm were fat, and yellowish-white. There was a considerable amount of strangury produced after taking the turpentine, but it finally subsided.

The second case of tænia saginata was that of a man, a German 35 years of age, who presented the usual symptoms of the tape worm. I ordered him to fast during a week, and drink as much vinegar as he comfortably could during that time. About the sixth day after this treatment was commenced, he passed a complete tape worm, about 4 yards long. This tape worm was not as fat nor as long as that of the first case. Neither was the patient as fat or healthy as the first patient.

The third case of tænia saginata was that of a female, unmarried, American, æt. 18 years. She had discovered the segments of a tape worm in her stools, and brought some of the segments thus passed to my office, which were conclusive evidence that there was a tape worm inhabiting her small intestines. I ordered her a combination of 1 oz. of pumpkin seeds, including their shells, and 2 drachms of oil of turpentine, made into an emulsion, and to be taken at once after she had fasted two days. The first evacuation of the bowels after the medicine had been taken, she discharged the tape worm complete. The tape worm, like the patient, was healthy and fat, though not as long as that passed by the first patient.

Dr. T. W. Shaw, of Pittsburgh, states that he has great faith in the efficacy of the following medication for tape worm:

℞ Kameela. ʒj.
Ethereal extract male fern, ʒij.
Syr. acaciæ, ʒj.
M. Sig. To be given in two doses, one-half on rising in the morning, and the other half two hours afterwards. A dose of castor oil to be given one-half hour after the last dose.

He states that he has succeeded in dislodging and discharging six tænia saginata in their entirety by the above medication.

Dr. W. F. Barclay, of Pittsburgh, has found in two cases where other remedies had failed, that chloroform internally acted in a perfectly satisfactory manner in discharging the worms. He, however, is careful to select his cases so treated from those who have healthy hearts.

Dr. W. R. Allison endorses the reported action of cocoanut as a tænifuge (*Medical Age*). In a case where male fern effected only a partial removal of the worm, and where chloroform and turpentine were tried in succession without effect, the patient, by chance, ate a cocoanut, and was surprised to find he had discharged a complete tape worm. Since then, the doctor has used cocoanut, and finds that it removes the worm without the usual administration of a cathartic.

It has been proposed by Camp (*Dietetic Gazette*), to give a dose of castor oil in the evening, followed the following morning by twelve 10 gr. doses of thymol, at intervals of fifteen minutes. A dose of castor oil is administered after the last dose of thymol, when the expulsion of the worm may be expected. The suggestion is made that no supper be eaten the day before the thymol treatment. At the time of the expulsion of the worm, the patient should sit on a bowl of warm water, so as to facilitate the passage of the worm entire.

Squibb, in his *Ephemeris*, Vol. i, p. 172, states that several years ago, he had good opportunities of observing the *location of the* attachments *of the head* in cadavers, and found a great variation in their attachments. Sometimes the head was attached low down, near the ileo-cæcal valve, at other times high up, near the duodenum, and not unfrequently the attachment was in a little pouch, or under a fold of mucous membrane; and that the head was always imbedded in a nidus of firm, jelly-like substance, like inspissated mucus. This led him to the conclusion, that such cases would be very differently affected by treatment, and that an efficient plan of treatment in one case would likely fail in another, owing to the differ-

ence in the location of the head; and further, that the obstinate cases were those where the attachment of the head was low down in the canal, and so protected as to be difficult to get the parasiticide to come in contact with the head to poison it, and cause it to loosen its hold. Some years later, when the doctor, with others, became affected with the tape worm, he had opportunities of observation in the treatment of these parasites, and he was confirmed in the belief that the location of the head had much to do in the resistance of these obstinate cases, and that when the treatment was carefully directed by this consideration, one parasiticide was as good as another, when well managed. With further experience in the treatment of patients suffering with this parasite, he was convinced that pumpkin seed and the oleoresin of male fern were the best agents, and that one was as efficient as the other.

He finally recommended a plan of treatment which is as follows: That a light dinner in the middle of the day be taken, no supper in the evening but may drink freely of water. Before going to bed a saline aperient in the shape of one or two seidlitz powders may be given. The aperient should be saline because it causes a copious effusion of serous liquid to flow from the mucous membrane of the whole canal, and thereby the mucous which surrounds the head of the worm is detached and washed away leaving it bared in order to come in contact with the parasiticide. The following morning a second dose of seidlitz powder may be given, whether the bowels have been moved from the first dose or not. The patient is directed to fast and to lie in bed during the dosage.

Four ounces of pumpkin seed, including the shells, are beaten in a mortar, a half ounce at a time, a few drops of water being added from time to time till it is all made into a paste, when the trituration is still continued with gradual addition of water, q. s., to make a pint of emulsion. At 10 A.M., or after the morning saline has operated, a third of a pint of the emulsion is given—in two hours afterward a second third of a pint, and two hours thereafter the remainder of the emulsion. In one hour after the last dose of the pumpkin seeds has been given a half ounce of castor oil may be given, when the discharge of the worm may be looked for.

If the pumpkin seed treatment should fail Dr. Squibb recommends in the second trial, after a sufficient lapse of time, and after preparing the patient with a saline aperient as with the pumpkin seed treatment, to substitute oleoresin of male fern for the pumpkin seed. It may be given in capsules each containing ten grains. Two of these are to be given every quarter of an hour till twelve capsules have been taken, unless nausea should occur. Under such circumstances he considers eight or ten capsules sufficient, or all that can be safely given.

It was formerly supposed that tænia solium, solitary tape worm or hog tape worm, was the most common tape worm and was found most in man, but now it is known that the beef tape worm or the tænia saginata is the most common. The length of the beef tape worm may be from six to thirty feet. It has a small head and holds on to the mucous membrane of the small intestines by four suckers. It may extend along the whole length of the small intestines or it may be coiled upon itself. The segments of the beef tape worm near the head are very small, flat, narrow and short, wider than they are long, but as the distance from the head of the tape worm increases the segments increase in length and width till the length may be from a quarter of an inch to an inch, and the width four or five lines. The segments of the tænia saginata present a yellowish white, thickish and band-like appearance. The farthest segments from the head finally become matured and spontaneously detached and then they are either passed in the evacuation of the bowels or they may creep spontaneously through the anus. The matured segments may either lay or deposit their eggs in the feces before or after evacuation. The tape worm often loosens its hold on the intestines and lengthens itself or shortens itself so as to get a hold on a new field in the intestines. This wriggling, lengthening and shortening, and snake-like curling of itself is likely the cause of many of the uncomfortable symptoms experienced by patients suffering with a tape worm.

The beef tape worm in its maturity exists in the small intestines of man. The measle is found in the muscles, liver and lungs of the beef.

The ripe segments of the beef tape worm exhibit each a papilla in which is the external aperture of the genital apparatus. In the fully ripe segments the uterus is distended with eggs, which can be obscurely seen, but after the segments have been dried the eggs are rendered more visible. It is these eggs, deposited in pasture fields in the feces of man suffering with tape worm, which are licked up by the ox and taken into his system, that finally form the measles in the muscles, liver and lungs of the ox. The measle or larva is subsequently taken into the stomach of man by his eating the raw or insufficiently cooked beef from such diseased meat. This measle then soon develops into the tape worm. It has been known to be reared from the measle in fifty-four days.

The eggs from the hog tape worm, or tænia solium, are first deposited in the feces of man in places accessible to the hog, where the hog takes the eggs into its system. Thus, the meat of the hog becomes affected with the measle. It is by eating this affected meat in a raw or insufficiently cooked condition by man that the measle or larva gains a fruitful field for development in the intestines of man. Commonly, pork is more thoroughly cooked than beef and consequently the hog tape worm for this reason alone would be less common.

The mature hog tape worm is only five to ten feet long. Its segments are thin, white and band-like, and where widest about four lines in width, and one-half inch in length. Its head is smaller than that of the beef tape worm, or about the size of that of an ordinary pin, and has four hemispherical cup-like suckers, and the summit forms a blunt papilla peculiarly armed with twenty-five or twenty-six hooks. The neck is thread like, for about an inch from the head, and then merges into segments, which nearest the head are small and flat, wider than long, but as their situations approach nearer its posterior they are longer and wider but not as wide as long.

The tænia solium is so called from the supposition that it existed solitary in man, but the fact has been recently established that two or more hog tape worms may exist at the same time in the intestines of man. It is of rapid growth and may be reared from the measle in from two to three months. The length of life of the hog tape worm under the most favorable circumstances is about twelve years or more.

The Bothriocephalus Latus, or broad tape worm, is not

an indigenous product of this country. It is a more common product in countries where the inhabitants thereof eat fish almost exclusively, as in some localities of Europe, as Sweden, Russia, East Prussia, Poland and West Switzerland. Man may ordinarily become infested with this parasite by eating insufficiently cooked fish. The broad tape worm may be three quarters of an inch wide at its widest part and twenty-five feet in length.

PUDENDAL HÆMATOCELE IN THE NON-PUERPERAL STATE, WITH REPORT OF A CASE.

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FREQUENCY.

Pudendal hæmatocele, in the non-puerperal state, is, according to reliable authorities, of very infrequent occurrence. Thomas (Diseases of Women, fifth edition, page 132,) says: "The accident in the puerperal woman is not very rare, but my experience would lead me to regard it as extremely so in the non-puerperal, since in a practice of twenty-seven years I have met but four cases." A. Breisky, M. D. (Cyclopædia of Obstetrics and Gynecology, Vol. X., page 302), says in speaking of hæmatomata of the vagina: "They do not differ in regard to their mode of origin from hæmatoma of the external genitals. Both probably occur, but very rarely, save in pregnancy, and then only in consequence of direct traumata." Drs. W. H. Parish and J. M. Baldy (Annual of the Universal Medical Sciences, 1890, vol. II., H, page 5,) say: "Hæmatoma in both the puerperal and non-puerperal state are probably more common than is generally supposed."

PATHOLOGY AND CAUSATION.

Thomas (vide supra) says: "The pathology of this condition is similar to that of pudendal hæmorrhage, which has just received notice, for both are results of rupture of the bulbs of the vestibule. In that which we are now considering, the effused blood, instead of pouring away, collects in the tissue of one labium, under the vagina, or even in the areolar tissue of the pelvis, and forms a coagulum;" and on the causation, "The causes are similar to pudendal hæmorrhage, namely: (1) muscular efforts, (2) blows injuring the labia, (3) punctures by small instruments." Parish and Baldy state (vide supra) that "Hæmatoma of the non-puerperal state are the results of falls, blows, kicks, awkward coition, etc."

SYMPTOMS AND TREATMENT.

According to the authors above referred to the symptoms generally encountered are more or less pain, collapse, vomiting, difficulty of micturition, and if the effusion reaches the urethra, obstruction of urination. If the effusions are small, cold, and astringent, applications should be applied, the evacuations of the bladder and rectum regulated, and perfect quiet enjoined. When large, the tumor should be freely incised, the clot removed, and the cavity thoroughly irrigated with a germicidal solution. In case hæmorrhage follows removal of the clot, the cavity should be packed with a tampon previously rendered aseptic and pressure applied.

Mrs. C., æt. about 45 years, mother of several children, youngest twelve or thirteen years old, is a weak, anæmic woman, and has had very poor health for many years.

On October 29, 1891, at 2:30 A.M., was called to see the case, and obtained the following history: Yesterday evening, while walking along the railroad track, she slipped, and, her legs spreading apart, fell, striking the posterior and central portion of the right labium and perineum on an iron rail. She walked home and did not suffer much for some time; then the parts began to swell and became very painful. The husband applied hops, arnica, and other remedies, but without any good result; the pain continued to increase in intensity; nausea, restlessness, weakness, and symptoms of shock supervened until she was nearly frantic. There had been considerable external hæmorrhage, probably from eight to twelve ounces, but this had ceased on my arrival. On examination I found the whole right side of the vulva and perineum enormously swollen, livid, tense and very painful. Gave

℞ Ammonii chloride, ℥iij.
Tr. opii., ℥iv.
Tr. arnicæ, ℥iij.
Ext. lamamelis, dest. q.s. ad., f℥viij. ℞
Sig. Apply freely and constantly to swollen parts by means of thin layer of absorbent cotton.

Also gave

℞ Morphiæ sulphatis, grs. ii.
Acidi sulphurici aromatici, ℥i.
Aquæ, q. s. ad., f℥ii. ℞
Sig. ℥j every hour or so as needed for pain and nausea.

At 5 o'clock A.M. was called again and found that the lacerated tissues on the inside of the right labia had ruptured and given exit to some fluid blood. Digital examination revealed a clot the size of a large orange; this I removed and washed the parts well with a 1-2,000 bichloride of mercury solution, and syringed out the cavity with a 1-4,000 solution of the same, as hot as it could be borne. I then, as a precaution against further hæmorrhage, packed the cavity with cotton pledgets wrung out of a 1 to 3,000 $HgCl_2$ solution, and drew off about twenty-four ounces of urine; this last was accomplished with considerable difficulty, owing to the greatly swollen and distorted condition of the parts. I also administered ℥ss. normal liquid ergot, directed that the local applications should be kept up continuously, and that she be kept perfectly quiet.

October 29, 4:30 P.M. Local applications have not been properly applied and pain and swelling very great. As pressure on urethra prevents urination, I drew off a small amount of urine. Removed cotton pledgets and washed out cavity with *hot* bichloride of mercury solution; no hæmorrhage.

October 30. Rested quite well last night; swelling greatly reduced, but injured parts very black; kidneys not acting freely. Last night she urinated once, passing a small amount, and this morning I drew off eight or ten ounces of highly colored urine.

October 31. Better: bowels moved and urinary secretion freer; cavity syringed out as before.

November 2. Very sore and feeling badly; some foul discharge; continue irrigations.

November 3. Better; gave tonic of iron and quinine.

November 5. Swelling much less, but still some discharge; continue previous treatment.

After this she rapidly improved; was sitting up on November 10, and made a satisfactory recovery.

I wish to state in this connection that I am firmly convinced, owing to the patient's weakened condition and general ill-health, that septicæmia with a fatal result would in all probability have followed had it not been for the strict antiseptic treatment adopted.

In conclusion I would present the following summary:

1. Pudendal hæmatocele, in the non-puerperal state, is a pathological condition of rare occurrence.

2. It is always produced by falls, blows, kicks, or external violence of some kind.

3. If the effusion is extensive, the tumor should be freely incised, the clots removed, and the cavity thoroughly irrigated with a *reliable* germicidal solution; *this should be used as hot as it can be borne for its hæmostatic effect.*

4. Hæmorrhage should be controlled by tampons, pressure, and such other means as the exigencies of the case may demand.

SOCIETY PROCEEDINGS.

American Electro-Therapeutic Association.

First Annual Meeting of the American Electro-therapeutic Association, held in Philadelphia, September 24, 25 and 26, 1891.

(*Continued from page 172.*)

Professor Houston, on the President's invitation, said: I feel no little diffidence in talking to medical men, as I am neither a physician nor especially skilled in electro-therapeutics. I am, however, a physicist, and since the physicist must join forces with the physician, if any real progress is to be made in electro-therapeutics, I accept with much pleasure your President's kind invitation, and will say a few words as regards electro-therapeutics.

I believe that in the domain of electricity the future is bright with promise, not only along commercial lines, but also as regards the application of the electric force to the curing of disease.

I trust that you will pardon me as an outsider, and therefore as one who is, perhaps, unable to thoroughly appreciate the advances made in electro-therapeutics, although conversant with such general advance, if I say that, to a certain extent, I think the science of electro-therapeutics has been somewhat empiric; that the electro-therapeutist has been groping in the dark concerning the best manner of applying electricity as a curative agent. I offer with considerable diffidence some views that I held for many years concerning the possible direction in which, perhaps, the most marked advance can be made as to the therapeutic effects of this wonderful electric force.

In this age of specialism we certainly have reached a time when it is impossible for any one man to occupy more than a very small corner in any particular field of investigation, and this is especially true in the work of the medical electrician. It seems to me that in order to insure the most marked advance, the physician must work shoulder to shoulder with the physicist.

I would place the qualifications of an electro-therapeutist at a very high level. To properly undertake such work one should be an accomplished electrician, a thorough physicist and chemist, and should know practically everything in the range of the medical sciences. The outlook is very discouraging from the alarming extent of knowledge required, but it seems to me that true progress can only be made along these lines.

I think that you will agree with me that it is practically impossible for any one man to attain such extended knowledge, and that consequently an electro-therapeutist must work hand in hand with those skilled in the branches of knowledge to which I have referred. As a physicist, who claims to know some little about electricity, I offer the following merely as suggestive:

Is it not possible that heretofore rapid advance in the science of electro-therapeutics has been retarded by the, perhaps, natural tendency of regarding the human body as a receptive device alone, rather than an electric source also, as I think it should be regarded? My reasons for this belief are as follows:

1. Various chemical processes are constantly going on in the human body, which must result in differences of potential between the different organs or parts of the body, and these conditions must vary with the normal and abnormal conditions of such parts.

2. The human body possesses differences of temperature, and although these differences are not marked, yet they are probably sufficient for the production of thermo-electric currents; that is to say, the normal differences of temperature must result in differences of electric potential. Abnormal differences of temperature, as in febrile disturbances, must also result in abnormal electric conditions. At any rate, these differences of temperature must result in changes in the electric resistance of the parts, and, therefore, disturbances in the electric conditions of the body. It seems to me that the electro-therapeutist would be very much enlightened concerning the conditions of the body if he could learn to measure the variations in its normal and abnormal currents.

3. The human body shows electric currents of the nature of demarcation currents; that is, currents produced by injuries to nervous or muscular fibres. These currents, as you are well aware, are produced at demarcation surfaces, and result from the chemical decomposition and recomposition going on in such injured parts, in the efforts of such parts to restore a normal condition.

From these and other considerations it would seem to me that the human body should be regarded as an electrical source. Consequently the future electro-therapeutist as a diagnostician will probably have much to do in studying the normal and abnormal electric conditions of the human body.

If this position as to the human body being an electric source be correct, the electric treatment of the future will be directed to establish the normal electric conditions of the body.

In this direction the electro-therapeutist will study—

1. The human body as regards the exact value of the differences of potential of its different parts in micro-volts.

2. The electrical changes in the muscles following conditions of rest or activity, or normal or abnormal conditions.

3. The most difficult of all, the electrical resistance of the various parts of the body.

Of these three directions of study it would seem to me, as an electrician, that the most promising direction of immediate research would be in accurately ascertaining the value of the normal and abnormal resistances of the different parts of the human body, eliminating or making proper allowance for that exceedingly variable element, the resistance of the skin. I need not say to you that if we know the resistance of any organ or part of an organ, or of the whole body or part of the whole body, in ohms, and could measure the differences of potential of the said parts in micro-volts, we will at once know the currents traversing such parts in milliampères.

Under what conditions ought we to expect the resistance of the human body to vary? These, briefly, are as follows:

1. The condition of the skin as to dryness or moisture, as modified by normal or abnormal conditions of the body.

2. The temperature of the parts whose resistance is being taken.

3. The interesting question which I have never seen discussed in medical papers, probably on account of my comparative ignorance of medical literature, as to whether the resistance of the body would be the same from the head to the feet as it would from the feet to the head; or, in other words, whether the human body does not in reality possess a true asymetrical resistance—that is, a resistance which varies when taken in different directions between the same points of the circuit.

If my proposition as regards the human body as being an electric source as well as an electro-receptive organ be true, such resistance would appear naturally to be of the nature of an asymetrical resistance.

4. And probably the most important, the normal or abnormal condition of the body as determined by alterations in the value of its resistance. I think it is a well-established fact that diseased conditions of the body are attended by alterations in the value of the electrical resistance. I know that this is asserted to be the case in Grave's disease.

As I have said before, I offer these views with diffidence, and trust that you will not consider them impertinent, coming as they do from one with no especial experience in your line of study. I offer them as mere suggestions.

Dr. Morton: I rise to move a vote of thanks for the Professor's valuable remarks, and I take a great deal of pleasure in what he has said, as much of his remarks confirm my paper read yesterday. It gave me great pleasure to listen to him in more technical terms. I had one more source which he did not mention, and that is the liquid circulation; but the liquid circulation would be undoubtedly one more electro-motor source, and I had thought of that in connection with my paper, but did not lumber it down with it, as I thought I had more important things—the chemical processes.

I am glad to see that the physicists take more interest in our association, and I welcome him as among the first and most distinguished physicist to come and see us and make suggestions about our work, that we may give the benefit of our knowledge to general humanity.

Seconded by Dr. Hayd and carried.

Dr. Goelet: I think we might go a step further and invite such men to become members of our Society, and we can work harmoniously,

President: Unfortunately that would conflict with our Constitution, which is arranged for a different purpose, and specifies the members should be practitioners of medicine in good standing; but there can be no objection to our inviting them to attend our meetings, and read papers.

Dr. Robinson: I did not intend to touch the penetration of electricity. I also say in reply to Dr. Newman's point to go more into detail of action, that I cut my paper in half and left that part out. I realize that it is too general, but I picked out that which would seem most important and eliminated the balance on account of lack of time, to take up one or two points.

As to polar application, don't you see its absurdity in my treatment? I recommend the direct galvanic alternating. How can you get polarization? As to Dr. Morton, it does not make any difference how much you alternate, you get as much electrolytic action whether you alternate or not. The very moment you get one pole upon the diseased organ you have polar action, but when you have a certain lesion, and put the poles quickly and alternate the current you do not have any polar action.

As to Dr. Goelet, I was very much pleased at his remarks as I think it bears out my theory of vital action. If it were chemical action, the more you gave, the more chemical action you would get. If you give five minutes, you get the vital action, but if you give longer than that, you get an overdose as in any other remedy.

I understand the value of the clay ball electrode but I cannot use it for the reason that I give electricity in my office during one hour, and probably I am outside the next, and I use as many as twenty different electrodes.

I have been very much pleased with the kind reception of my paper and if I have been able to offer any suggestions I am very glad.

Dr. M. A. Cleaves read a paper entitled

THE USE OF THE GALVANIC CURRENT IN ARTICULAR INFLAMMATORY EXUDATIONS.

June 7, 1891, I was called to see M. M., æt. 52; widow, mother of five children, who was suffering from a sub-acute-articular rheumatism of the right wrist and hand. Upon inquiry I found that she had had an attack of inflammatory rheumatism twenty-seven years before, affecting all the articulations of both lower extremities, beginning with the knee, also of left hand and wrist.

She was then confined to bed for three months and was more or less crippled for a year afterwards, but ultimately made a good recovery.

There was no return of the trouble until in February, 1891, when the snow came through the roof of the house into her bed-room, rendering it very damp and chilly.

She developed rheumatism of a sub-acute inflammatory type in the articulations of the lower extremities as before.

Owing to reduced circumstances no physician was called in, but she bathed in bran water and took magnesium sulphate every morning as she had been directed to do in the attack twenty-seven years before.

After a month there was complete recovery so far as the legs and feet were concerned, but she had for a few days a rheumatic stiffness of the neck, and then about the first week in April her right wrist and hand became affected.

She pursued the same course as before with, in addition, occasional applications of tincture of iodine, but there was no abatement of the trouble.

At the time of my visit she had been unable to use her hand for two months. Upon examination I found the hand swollen to about twice its normal size, the infiltration of tissue being especially marked over the carpal and metacarpo-phalangeal articulations, the pitting on pressure plainly indicative of the fluidity of much of the effused material.

There was a decided increase of local temperature, much pain especially, in wrist and in metacarpo-phalangeal articulations of thumb and index finger, and a very extensive capillary congestion, the skin being of a purplish hue. The carpal and metacarpo-phalangeal articulations were in a state of extension while muscular power and sensation were almost lost.

The patient's general condition was not good. Directed a daily sponge bath in water, changing from tepid to cold, and the improvement in general condition was rapid.

June 8, she came to the office for galvanic treatment. Placing the anode at the sternum, I applied the cathode successively (using the ordinary hand electrodes wrapped in absorbent cotton) to the dorsal aspect of the wrist and metacarpo-phalangeal articulations, for fifteen minutes. The applications were stable and current strength 10 M. A. Immediate result, relief from pain during séance, diminution of heat and increased mobility.

The treatment was given daily for one week, then at intervals of two and three days, for six applications more,

making in all thirteen séances, in which, with the same arrangement of electrodes, 10 ma. of current were given.

Continued relief from pain, decreased temperature, increased mobility, with ability to partially flex the fingers. After the third a more marked gain in all these particulars and especially relief from the capillary congestion. Mobility of articulations of the thumb greatly increased.

Upon her return for the fourth treatment, she delightedly told me that she had begun to have normal sensation in her fingers and that she had helped to wash the dishes. At that time her general condition was greatly improved. Sleep continuous, appetite was more nearly normal, tongue clean, bowels regular, skin cleaner, and to use her own expression, she was "splendid."

She improved daily and on the 14th of June hand very much smaller, no heat, no pain, circulation good, sensibility increased, less stiffness, flexion good.

On the 15th she did some sewing, and on the 16th sewed all day with no bad result.

On the 19th I find recorded her ability to use scissors in cutting out her work and to lift light weights. The last galvanic treatment was given June 24, and I find on that day the following record: no infiltration of tissues and can close her hand with a good degree of power. General condition good.

After June 29, I gave her, as she came for treatment, five applications of the faradic current, secondary cathode at sternum, anode to motor points and labile to arm and hand, 35 cyl. for from five to ten minutes, with the result of increasing muscular power. In concluding this case I would emphasize the fact that from the fourth day of treatment, this patient has used her hand to a gradually increasing extent in the performance of household duties, and from the eighth day she has sewed more or less every day, oftentimes all day. There is complete recovery of power and mobility.

On August 26, 1891, M. Lewis, æt. 53, married, hat-maker, presented himself at the electro-therapeutic clinic of the New York Post-Graduate Medical School and Hospital, because of partial extension and loss of mobility of right wrist and hand. The following history was elicited: Thirteen months before, he was bitten by a mosquito on the dorsum of right hand, which resulted in blood poisoning. By the third day his hand was immensely swollen, skin almost black and pain intense, extending up the arm. He went at once to Bellevue Hospital as an in-patient. On the third day and for three successive days, incisions were made over the dorsum of the hand, and the arm was cauterized in its circumference at about the beginning of the humerus. The disease followed its usual course, relief from pain and sleep being procured for the first three weeks by means of morphia. At the end of four weeks he left Bellevue Hospital with his arm and hand in splint and bandages. After two weeks, being no better, he went to the New York Hospital, where the apparatus was removed. He continued there for a month, as an out-patient. Certain remedial measures were adopted which are unknown to me.

From there he went to Dewitt Dispensary as an out-patient, and for three months, three times a week, the faradic current was used with one pole on the sternum, the other stabile over the hand—séances lasting about five minutes. From this treatment he made slight gain in muscular power.

Upon examination, I found the condition as follows, viz.: partial extension of all the articulations of wrist and hand save last phalangeal articulation, which was complete. Flexion of the fingers upon the palm left a space of fully 2 inches between the palmar surfaces. Flexion of the wrist was possible to a very limited extent, scarcely changing the hand from its parallel relation with the forearm. In stretching the thumb and index finger to their fullest extent, the right lacked about 2 inches of equaling the left. The thickening was especially marked about the carpal and metacarpo-phalangeal articulations. Pain was complained of on the medial side of the wrist, just above the motor point of the median nerve. There was great loss of power, and an inability to grasp and hold things. The muscular movements necessary to hold scissors or a knife in cutting were impossible.

Diagnosis: Exudations about articulations of wrist and hand and sheaths of tendons, from the extensive cellulitis. Plan of treatment resolved upon: Interrupted galvanic current. Application: Gauze wire electrode 3 by 4 inches, covered with absorbent cotton, over spinal region of brachial plexus and attached to anode. Cathode: Electrode, cotton covered gauze wire 1½ by 8 in., placed successively over carpal, metacarpo-phalangeal and phalangeal articulations, current strength as could be borne. Length of séance from fifteen to twenty-five minutes.

To date there have been eleven treatments. The current strength has varied from 10 to 30 ma., and has averaged 20 ma. each séance. The time has varied from ten to twenty-five minutes, and has averaged twenty minutes for each treatment.

First séance: immediate result, a noticeable increase in mobility of metacarpo-phalangeal and first phalangeal articulations, with relief from pain. After second, continued gain in mobility of carpal as well as above articulations, and ability to bring index finger in contact with thenar eminence. After the fourth séance, could bring middle finger also in contact with thenar eminence, and after the sixth he called my attention to the fact that whereas, at the time of the previous treatment, he could still slip his left index finger between the tip of the ring and little finger and the palmar surface of the hand, it was then impossible to get it through.

The gain in mobility and power continues, although the most marked improvement was made during the first six treatments.

It is now in the condition shown in the second photograph—first two fingers in palmar contact when no attempt is made to flex hand upon the forearm, as was done when the photograph was taken. Also ability to flex hand upon the forearm at an obtuse angle.

Simultaneous stretching of both index fingers and the thumbs leaves a difference of less than ½ an inch in favor of the left hand. The treatment in this case is not yet completed, and we hope for further improvement. He can use his hand in cutting his food, for the first time since the injury.

Moritz Mayer has reported a series of cases which are *en evidence* of the potency of the galvanic current, not only in inflammatory exudations about joints and sheaths of tendons, but in dissipating, as well, hypertrophic callus after fractures.

Two galvano-punctures, negative, were used, for the nodosities of callus about the second joint of a man's index finger, four months after the fracture, with the result of decrease in size and movement of the finger itself. Subsequently, to get rid of the callus which was more evenly diffused, the percutaneous method was used, with the anode about the arm, the cathode around the injured finger. A sensible but not painful current was used for from ten to fifteen minutes. After sixteen séances, there was free movement of all three phalanges. There still remained inability to close the hand as before the accident. Operative interference would probably have left the man with a crippled finger and hand.

In a man 79 years of age, with gouty deposits along sheaths of extension tendons of both hands, twenty séances were sufficient for a cure, the anodes, as in the previous case, being

a large flat electrode bound around the arm, while the cathode, 5 cm. broad and 20 cm. long, was wrapped around each wrist successively.

Two cases of tendo-synovitis, with hard bodies on the vola side of the metacarpo-phalangeal articulations, were completely cured in twenty and twenty-five séances respectively.

This series of cases, representing as it does, the various stages of the results of inflammatory action about articulations, strikingly illustrates the chemical, cataphoretic and vaso-motor effects of the galvanic current.

It is quite time that we shall recognize, not in isolated cases, but in general work, the value of galvanism in such conditions, and resort to it in good season.

The question naturally arises, could not the case of lipsis have been as successfully treated with the galvanic current, upon the subsidence of the acute inflammation, as the first case, thereby enabling the patient to resume his usual occupation, which he has had to give up, besides giving him a much more useful member than we can now hope to secure?

Why should we wait until the advanced stages, attended as they are, with marked thickening of the articular and peri-articular tissues, contractions of muscle, exudative matter about sheaths of tendons, greater or less impairment of movement and deformity, in which electricity must be our chief resource, when better results can be obtained in a sub-acute condition, before exudative matter has become so fully organized.

There is no danger of developing more acute inflammation. On the other hand it is necessary to excite a more active circulation in the part with a view of removing the congested state of the capillaries and venules, so favorable to the development of fibroid growths.

Massage is a means toward the same end, but while it quickens and equalizes the circulation, it does not possess the powers of galvanism to produce chemical changes.

In the second case it had been used daily from about the seventh week after the injury, or for nearly a year. That it did much to prevent more complete immobility of the articulations there is no doubt, but that its action was limited as compared with galvanism the result clearly proves.

In adopting a definite plan of treatment I was governed by the hypothesis which Dr. Morton has so ably and interestingly presented to us during the session, and upon which we have done our work at the electro-therapeutic clinic of the N. Y. Post Graduate Medical School and hospital for the past four months; viz., "That living means nutrition, nutrition chemical action, and chemical action, under proper conditions, means electric current. These conditions are (*a*) a closed circuit combined with (*b*) any two different tissues, and (*c*) one acted upon, the other not.

Animal currents are proven to exist. The acted upon tissue is an "electro-motive source." It corresponds to the zinc, say, of a primary battery. The electrolyte is the fluid conveying the food to the cells of the acted upon tissues.

The acted upon tissue is always *electro-positive* to some other tissue acted upon. This hypothesis holds true of both normal and morbid nutritional processes. As regards such processes it compels us to base our treatment upon the *broad generalization that every such process is an "electro-positive focus."*

That proliferation is an excessive chemico-nutrition, which the positive pole makes more excessive, the negative pole less excessive, that is, counteracts.

In atrophy, there is a deficient chemico-nutrition, which the positive pole stimulates and restores. The negative pole, on the other hand, makes more deficient or destroys. The results in these cases, united with much that has been done heretofore, are confirmatory of the hypothesis upon which treatment was based.

In the treatment of disease, results are, after all, the main thing, even if we cannot always explain the relation between cause and effect in the use of our remedies, yet once we have a scientific basis for polar action much confusion will be done away with and we will have taken a decided step toward the establishment of a rational Electro-Therapy. The hypothesis of Dr. Morton, based as it is upon well known chemical and physical laws, seems to me to do away with an infinite amount of hypothetical reasoning less surely based, and which has not furthered our knowledge of therapeutical indications in the use of electricity.

In the class of cases with which this paper deals, electricity has been used for many years, but so long as authorities are satisfied with broad generalizations in recommending its use, there will be no progress.

As we are entering upon a new era of electro-therapeutics, evinced by our presence here, it seems to me that every case treated with a definite idea of the action of the chosen current and the polar effect must form a useful contribution to the sum total of our knowledge.

Dr. Von Raitz: I do not think there is any necessity for discussing this paper. I am very much pleased to find that her experience has been made on the law of Dr. Morton so that there is already a foundation for his paper.

Dr. Morton: I think the cases are very well reported and I was pleased with one practical deduction, and that was her delay of the treatment of the electricity until the last minute. Why not apply it early? I think it was a very practical suggestion.

Dr. Von Raitz read a paper entitled

ELECTRICITY IN ANCHYLOSIS.

To whatever cause anchylosis may be attributed, it presents itself clinically as true and false. The true is osseous union of the articular surfaces; the false, fibrous adhesions or chrondroid interposition between the articular surfaces.

In either form we may find osseous, fibrous, and chondroid formation; lent to form true anchylosis, the areas of osseous union of the articular surfaces must be large. A small ossified area will not constitute true anchylosis.

As a guide for prognosis, it is well to remember that, as a rule, suppurative lesions of the joints are followed by true anchylosis, while catarrhal lesions never favor osseous union.

The differential diagnosis is often impossible, and it would be bad practice to reset a joint because it does not yield under either.

False anchylosis, even with some osseous union, yields the constant current with the assistance of massage and passive motion, provided the treatment is carried on earnestly and intelligently. And it is safer to expect an anchylosed joint to be false, and to treat it accordingly, than to use the saw at once.

If after about ten sittings the joint does not improve, we then have time to use the saw.

I have a man with anchylosed elbow and wrist-joints, following neglected erysipelas, which appeared to have undergone osseous union, and which, though slowly, yielded to my efforts. The pus had burrowed into the joints, and was left there for too long a time, therefore bony union can be expected but not diagnosticated.

As to the treatment of anchylosed joints by electricity, we have to remember that the synovial membrane secretes an alkaline lubricating fluid. Therefore our aim must be to help Nature by stimulating its functions.

If we remember the chemical effect of the constant current, we will find that the negative division of it creates an alkaline reaction, which has a dissolving tendency.

That is exactly what we need here. Consequently the

affected joint must be enclosed snugly by an electrode and connected with negative pole. Another large electrode may be placed over any indifferent part and connected with the positive pole.

With large electrodes powerful currents can be used without causing pain or inflammation. For the larger joints, up to 100, even 120 ma., in one-half hour sittings, three times per week, are generally sufficient.

Much will depend upon the massage, which has to be given before the current, on the attempts or perseverance of passive motion and on the constitutional treatment; so on the general hygienic conditions.

I will not cite cases, but state that fibrous anchylosis in the knee-joint has yielded me in two months so as to allow the patient to walk upstairs and down without difficulty, and after four months without treatment is well.

I intended to present before you a very interesting case of chondroid anchylosis of the cervical portion of the spine and occiput and both shoulder joints.

That man suffered an injury thirteen years ago, and when I took care of him his head and spine appeared as if cut out of one piece, and not the faintest motion was allowed by any force. The right shoulder-joint was also completely anchylosed; the left shoulder-joint, however, allowed motion to an extent of twenty degrees.

This man improves wonderfully, and I am more than sorry he declined to be here, but hope to get his consent for some other occasion.

Dr. Morton: Cases of fibrous condition have interested me exceedingly. I have seen many of them in the last few years, and I only regret that I did not apply the negative pole. I recall the case of a lady going around in a chair, and had I known as much then as now I should have used it. At any rate, the tendency is to get to the negative pole in these cases. It is a very quiet but remarkable revolution in respect to polarity, and these cases are interesting from that point of view.

Dr. Massey: One point I wish to take up which relates to all three of the preceding papers, which is, instead of using salts, acids, or alkalies on the electrodes, I have found the use of a well-soaped surface more agreeable to the patient and more satisfactory to the operator. It has the effect of making the skin soft and a better conductor, and permits of the free use of the labile method. You will never use anything else if you try it. As to my free use of the negative pole, the reason has been practical. I felt indisposed to pass metallic substances into the body with the positive pole, as it is well known that base metals are affected when used as the positive electrode, the metal penetrating the skin.

Dr. Walling: We forget the electrical conditions of these points. I have been practicing for years, and in negative conditions you want to use the negative pole.

Dr. Morton: I am thankful to Dr. Massey for the absorbent cotton and soap. I find it exceedingly useful in our clinics in more sense than one.

Dr. Von Raitz: I thank Dr. Morton for illustrating some of the points I have said, and which corroborate me.

Dr. Chas. G. Stockton read a paper entitled

THE USE OF THE GASTRIC ELECTRODE IN DIMINISHED PERISTALSIS.

My thanks are due your President for the opportunity of presenting before the American Electro-Therapeutic Association this brief paper on "The Use of the Gastric Electrode in Diminished Peristalsis," a subject which has interested me deeply for several years.

The attempt will not be made to point out the various fields of usefulness for the electrode in gastric diseases. This has come to be too long a story, and although, as might be expected, experience has to some extent modified my views, there can be no doubt that in the majority of cases of indigestion, attended with weakened motility of the stomach, the direct electrical current is of decided benefit.

In the fall of 1887, I began the practice of this method of treatment, and in order to escape the disturbance created by the direct application of the metal electrode to the gastric mucous membrane, I endeavored to protect the stomach by conveying the current through the ordinary stomach tube.

At first an alkaline solution was used in the tube, and by this, the column of fluid was made the conducting medium. A weak current was, in this way, transmitted, but the experience proved unsatisfactory.

A tube was next prepared by running through its entire length a copper wire, which conveyed the current to the stomach, which organ was partially filled with an alkaline solution. In this way I was able to carry a current of sufficient strength for any purpose, but the tube, encumbered by the wire, was not easy of introduction, and necessitated too many introductions at one sitting; for the reasons, that I found it necessary to begin and end with an empty stomach, which in practice meant the use of the simple tube for lavage, the electrode tube for the current, and again the simple tube for the final emptying of the stomach. This frequent introduction of the tube at one sitting led to the creation of the contrivance which I have employed ever since, and which, to my mind, better answers the purposes than any instrument within my acquaintance.

It consists of an ordinary stomach tube, 28 inches long, with two openings made near the distal extremity. At the proximal extremity it is fitted with a hollow steel coupling, which, attached to 3 feet of rubber tubing, makes a continuous syphon about 5 feet in length. With this the stomach is emptied and, without removing the instrument from the stomach, the tube is disconnected at the coupling and a spiral wire, also 28 inches long, is introduced into the tube, and the coupling closed by a polished steel plug at the proximal extremity. In this way the current is conveyed to the stomach admirably, and the gastric mucous membrane is unable to touch the electrode, owing to the rubber covering, save at the fenestræ on either side.

After the application of the current, the electrode is removed, the rubber tubing again coupled on, and the contents withdrawn for study, with but a single introduction and removal of the tube, which resulted not only in the economy of time to the operator, but also in the saving of no little discomfort to the subject.

Having shown that direct gastric electrization is easily accomplished, the usefulness of the method now remains to be discussed.

For the purpose of study, my institution cases, owing to various interruptions of the treatment, are unsatisfactory. I have, however, the complete records of a series of forty cases treated in my office during 1891, which show better results and more positive conclusions than do the records of former years.

This includes cases:

1. Where the motility of the stomach has been simply weakened, as well as those in which it is apparently absent.

2. Those attended with dilatation.

3. Those accompanied with gastric catarrh, atrophy of the gastric mucous membrane, and some in which the hydrochloric acid existed in excess.

We are only now coming to appreciate the importance of weakened motility of the stomach walls as a disturbing factor in the processes of digestion. True, we have occasionally to deal with cases in which there is too great motor activity, and others in which the movement is irregular,

either as to manner or time, but these are less troublesome, if not less frequent, than the condition of weakened motility. With weak and slow movements there is delayed absorption, fermentation is induced, the chemistry of the stomach disturbed, and toxæmia of gastric origin, giving rise to many of the symptoms we have been in the habit of calling lithæmic, is the natural result.

In the treatment of these cases, it is best to restrict the diet to those substances which, upon examining the stomach contents, are found most readily digested. The current should be applied after lavage, and the faradic current is that which is usually more satisfactory, and which must be applied in sufficient strength to produce not merely the contraction of the abdominal muscles, but sufficient to induce movements of the stomach itself; which can be determined by palpation over the epigastrium, and sometimes by the forcible expulsion of fluid from the unclosed tube. A current of this strength is easily borne by the patient, provided a large sponge electrode be applied over the back or over the abdomen. It is, however, strong enough to give pain to the patient if made to pass, by accident, through the hand or face.

The sittings should be continued from five to eight minutes, usually beginning with five minute séances, and increasing the duration until the limit of endurance is reached, as shown by an excessive secretion of mucus, a disturbance of digestion, or a feeling of lassitude or pain on the part of the patient.

Having reached this, the proper dosage can readily be estimated. The treatment must be continued, in some instances, for a prolonged time; in other cases, relief follows a few applications.

I can well understand how disappointment to physician and patient would ensue, after the persistent use of this method for several weeks without marked benefit, but in a few cases, after months of patient effort, success has at length come, and I have now no hesitation in applying electricity at intervals for six months, if necessary, to establish a satisfactory peristalsis, without which some patients cannot be well.

In the case numbered "4" in this series, the patient was a neurotic woman whose digestion seemed perfect, with the exception of delayed emptying of the stomach. Under a prolonged treatment by diet and electricity she was better and worse from time to time for three months, before a decided improvement occurred. At length the stomach showed the ability to empty itself at the proper time, and absorption from the stomach also became more active. From this time onward there was slow and steady improvement. It was nearly eight months before the patient was discharged well, a result which I think was mostly owing to electricity, for when this treatment was discontinued, and lavage, diet and medication alone employed, she steadily lost ground, which was regained upon the reëstablishment of faradization.

Not so discouragingly long is the case No. 23, that of a young woman 28 years old, who had for several years suffered from intense headache. Her blood was 20 per cent. deficient in hæmoglobin, her complexion muddy, her tongue coated, bowels constipated, her sleep was disturbed and she was intensely nervous, with complete loss of appetite; indeed, she said she had not been hungry more than once or twice during the past several months. She made no complaint about her stomach, except that occasionally she would have a headache more intense than others, at which time she would vomit, and after which attacks she felt relieved of her symptoms.

After subjecting her to various forms of treatment, I turned the case over to my associate, Dr. Allen Jones, for further study. The doctor at once turned his attention to the stomach, and discovered that there was almost complete loss of peristalsis, the food remaining indefinitely and undergoing fermentation which, doubtless, gave rise to the toxæmia and the other symptoms. After lavage she felt relief for a few hours, but her symptoms very soon returned, and no positive improvement occurred until the use of the direct electrical current, after which, she made rapid progress, considering the long duration of her illness.

The patient recognized the importance of the treatment, and asked for its renewal when it was temporarily discontinued. After two months the case was discharged well, and yet this young lady had been dosed with iron and various other reconstructives for years without the slightest benefit.

As soon as her stomach regained its motility the evidences of toxæmia disappeared; that is to say, she had a good complexion, with clear skin, and was without headache, nervousness, and sleeplessness; her bowels became regular, and she regained her strength. From day to day it was observed that less food was present, less fermentation, the absorption improving as there was evidence of increased motility.

In some cases the greatest benefit appeared to follow after half a dozen sittings.

In No. 20 we have a case in which the treatment had to be discontinued because of the debility which appeared to follow the use of even a moderate current. The patient was a neurasthenic, single woman, 40 years old, who had suffered for years from mental pain and neuralgia, weak heart, disturbed sleep, and the usual symptoms belonging to her class. Her digestion was in every way atrocious, and remained rebellious to every form of treatment which I applied. Perhaps nothing which I did seemed to disturb her more than electricity.

I must not spend too much time on this part of my subject; but before leaving it, let me say that in a few instances I have found greater benefit from the application of the continuous current, with occasional interruptions, than by the faradic current, which one would naturally apply.

Let us pass on to the discussion of electricity in the treatment of poor motility associated with dilatation of the stomach. There is no question about the importance of the measure here. In fact, I can conceive of no way of relief to the sufferers from gastroectasia save by electricity and massage. The faradic current is usually the more satisfactory, and under it there will be found moderate improvement appearing after a comparatively short time; but a great improvement is not usually obtained until months of almost daily stimulation to the gastric musculature enables the stomach to maintain its position, keep to its normal size, and empty itself properly.

Twenty-one in this series of forty cases showed greater or less dilatation as demonstrated by accurate measure. Of this number, twelve showed dilatation of an extreme degree. Some are still under treatment, but five are discharged as cured. All have been greatly benefited, and a number have regained to such an extent that absorption takes place properly, and the stomach is emptied quite uniformly five or six hours after an ordinary meal. This may not impress you as being a remarkable record, but when you consider that the twelve cases were all severe ones, that they have all been benefited, that some have been cured, that others of them are nearly well, I think it will be considered a triumph as compared with any other course of treatment hitherto suggested for the relief of this persistent and very serious condition.

I can only allude to that class of cases in which the stomach movements are diminished, and which cases are associated with gastric catarrh, gastric atrophy, or excessive

secretion of hydrochloric acid. These complications (if they may be so called) often interfere with the regular course of electrical treatment, and each case must be studied by itself.

The cases in which there is marked gastric catarrh do best under the continuous current. The anode is applied within; the cathode, with a large sponge electrode, applied over the back, and a dosage, ranging from 8 to 15 milliampères, generally employed.

With the current occasionally interrupted, as before described, the dilatations may be relieved, and, not infrequently, the catarrh also improved. In instances of atrophy of the mucous membrane either current may be employed. The continuous current is useful here, because it is more potent in stimulating the secretion of hydrochloric acid than the faradic.

Occasionally an excess of hydrochloric acid interferes with the electrical treatment. This, however, is very unusual, and generally then but temporary.

It, in my opinion, should be a rule that the treatment in ordinary instances should be applied at bed-time, and the stomach left empty and at rest during the night. This plan, however, will prove impracticable when there is great excess of hydrochloric acid, for this so disturbs the empty stomach during the long hours of the night that the patient not infrequently loses sleep or wakens in the morning feeling miserably.

These are among the most important points as regards exceptional cases.

These remarks may suffice to give a general idea of this method of treatment, and although I feel tempted to speak with greater particularity, such a course might prove tedious to the hearers.

In closing it may be well to affirm that in nearly every case of weakened motility, electricity by direct application is of the utmost importance.

The exceptional cases are those which are associated with malignant disease, a few rare cases accompanied by gastric ulcer and weakened motility occurring in some instances of general neurasthenia, in which electricity, no matter how or where applied, is resented by the patient.

It is necessary, in order to obtain success, for one to study carefully his cases as regards diet, and avoid over-taxing the digestive strength of the individual. Over-feeding, underfeeding, or the taking of improperly prepared foods, are not infrequently as powerful obstacles to success as the taking of foods unfitted to the given case.

Dr. L. Wolff, Philadelphia, physician to the German Hospital, Demonstrator of Chemistry, Jefferson Medical College, etc., read a paper entitled

ELECTRICITY IN DISEASES OF THE STOMACH.

The employment of electricity to influence functional activity of the stomach, both by the constant as well as the induced current, has been advocated quite early in the development of electro-therapeutic science. It was stated by Ziemssen in 1877, that the muscular coat of the stomach was contracted on being connected with the current, and that its contractions were continued on in the pyloric portion, but only little so in the fundus, and the circular fibres more so than the longitudinal; also that it required to produce energetic contraction to have the viscus partly filled with water and air. Under those conditions the gastric lumen was diminished and part of its contents were expelled through the pyloris. These experiments conducted on animals were also confirmed by other observers both in man and animals. It was further shown that the glandular activity was increased, especially so by the employment of the galvanic current.

The experiments referred as well to the bi-polar external application of the electrodes as also to the introduction through gastric fistulæ in animals and the œsaphagus in man of one of the poles. Ziemssen states that the effect of strong currents applied with large poles externally while acting both on the abdominal parietes, was manifest to the patient by sensation of warmth in the stomach and increased desire for food, followed by a considerable improved digestive action. This is not alone the case in normal stomachs, but also found under pathological conditions, such as old gastroectases, and chronic dyspepsias. If one of the poles is introduced into the stomach containing some water this action is admittedly more marked and energetic, though by older writers on the subject it was thought impracticable for therapeutic purposes. Erb, in his hand book on Electro-Therapeutics, after quoting the promiscuous use of electric currents in various affections of the stomach, mostly of the nervous variety, and by the bi-polar external application, thinks it of use principally in atony and dilatation, especially arising from nervous debility and central disease. He claims, thus, to obtain contractions of the muscular coat of the stomach, and advises its use jointly with lavage. Leube recommends the electric current in gastralgia with anode over epigastrium and on the seat of pain; Brenner cured a sensory neurosis of the œsophagus by the application of a constant current along the pneumogastric with anode at the back of neck and cathode between sterno-cleido-mastoid. Nervous vomiting has been successfully treated both by the faradic and galvanic currents, also nervous dyspepsia, for which Beard and Rockwell recommend general faradization; when associated with neurasthenia, Stein recommended the use of the faradic current by the employment of one pole each in either hypochondria. Erb states that the muscular fibres of the stomach react to electric currents by slow contractions gradually increasing in a peristaltic manner. They respond more readily to the faradic than the galvanic current, the former producing palpable peristaltic movements of the stomach and intestines with gurgling sounds. Schliep observed that water previously introduced into the stomach rapidly disappeared after faradization. Erb, already noted that the internally applied electro caused very little sensation. Onimus recommends the galvanic current from epigastrium from back and from lesser to greater curvature, while Fuerstner and Neftel employed faradism over the dilated stomach. Erb thinks it most serviceable to apply a large electrode to the back immediately to the left of spinous processes on level with cardiac end of stomach, and the smaller to the epigastrium. Thus the current produces vigorous contractions of the abdominal muscles. With the galvanic current, he recommends the anode to the back and the cathode labile over the stomach after the latter had been washed out; he also considers that there will be rarely occasion for the use of an internal electrode. Pepper, at an early period, stated that external faradization of the stomach, produced little more than contraction of the abdominal muscle. I have quoted, at random, short notes on the subject from current literature, to show that electricity, while universally esteemed as a therapeutic agent in diseases of the stomach, found by its many advocates a most diverse and varied method of application. Undoubtedly the painful neuroses may be controlled by galvanic current and the glandular secretion by it increased, but the principal application of electricity in gastric affections, consists in the motor stimulation by means of the faradic current, when the atony of its fibres have caused more or less permanent dilatation.

It is due to more recent efforts that intra-ventricular treatment by means of soft stomach tubes, has been popularized, and that also intra-ventricular faradization has been revised. The objections made by Ziemssen and Erb were

refuted by Ewald, who had done so much in every respect to enlarge our knowledge of the stomach, its functions and diseases. While this latter experimenter has definitely proven that with large electrodes and a strong faradic current, externally applied, salol was more rapidly eliminated from the stomach than without it; he decidedly gives the preference to intra-ventricular faradization over the external method in the treatment of gastroectasis, with the distant electro either applied to the epigastrium or better still, in the rectum. My own experiences in the treatment of affections of the stomach, have lead me early to apply the two electrical currents. I shall first take up the use of galvanism in this connection. Its application with a view of exciting increased glandular secretion has been, in my opinion, decidedly overrated. I have at no time been able to detect by chemical means an increase of HCl in the gastric juice after the external application of the galvanic current in the manner as mentioned by the investigators heretofore. This will show at once that digestive ability has not been improved, though larger secretion might have been achieved. As internal galvanization with a view of improving digestive powers, could only be practiced in a previously empty stomach, and then partially filled with water, its value, if it possessed any, would not be available. Yet I have found the galvanic current useful and of the greatest value in dilating traumatic strictures of the œsophagus. To illustrate this, I will quote here the following case:

Mr. P. J., a French gentleman, fifty-five years of age, was admitted to my service at the German hospital of Philadelwith an œsophageal stricture. He stated that this arose from having swallowed in mistake, a considerable quantity of strong HCl some eight years previous. He had since then been obliged to restrict his diet to liquid and semi-liquid food. He had been under treatment in various hospitals and under private practitioners, both here and in Europe; the methods employed in this purpose were gradual dilation with the ordinary œsophageal sounds; at no time, according to his statement, had he been benefited sufficiently to eat solid or coarse food; on examination, the stricture was found of a calibre to barely admit a 27 mm. bougie; gradual dilatation was practiced for some days, and larger bougies were only with some difficulty passed. The use of metallic bougies connected with the galvanic current then suggested itself to me; weal currents from five to ten ma. were used, and it was noticed that the bougie passes under its influence with greater facility and could be readily increased in size; daily séances were held and by doing so the stricture was rapidly dilated to 50 mms.; this took only a period of about three weeks, at which time the patient was capable of eating ordinary diet, and was discharged at his own request. Nothing has been learned of him since. I am hardly prepared to attribute the success in this case to direct use of galvanism or to the absorption of the stricture by cataphoresis, but I am firmly convinced that the galvanic current facilitated mechanical dilatation in a most astonishing manner. The current strength during the treatment was often increased to 20 ma. and over without having experienced any untoward influence upon the pneumogastric, which Ziemssen and others caution against in such procedures. My electrode, which I here exhibit, is of the very simplest kind. It consists of a soft, copper wire, at the lower end of which is a thread for screwing on the olive shaped sounds, while at the other end is screwed on a clamp for the reception of the wire; the wire itself is insulated by being covered with a soft rubber tubing. When in use, a large flat electrode is applied over the epigastrium, and the sound is inserted into the œsophagus to the stricture before connection is made; the current is then gradually turned on and increased until perceptible sensation, under the external electrode is experienced by the patient. When removing the œsophageal sounds after it had been passed, the stricture, the current should again be disconnected.

The only other application of electricity in the diseases of the stomach which I have found serviceable, consists in the faradic stimulation of the muscular fibres in atonic ectasis. I have described this before in a paper on the subject of gastroectasis—*Therapeutic Gazette*, July 15, 1891—and will, therefore, merely state here, that it is a most potent factor in the curative treatment of this disease. I can fully confirm all that the former writers on this subject have already stated, and, while lavage and other treatment is indispensable to overcome the chemical defects of digestion, it is faradization alone that will restore the motor power of the atonic muscular fibres. The individual sensation of the patient is never one of discomfort, nor does the presence of the tube during the séance, which need never to exceed five to ten minutes, trouble any of those patients who have been educated to the mechanical treatment of the stomach by lavage. It has been my custom to wash out the stomach before the principal meal of the day, and after this the patient is requested to drink about two glasses of water. This is followed by swallowing of the tube containing the electrode which I here exhibit and describe below. The current is then turned on, first gradually, and until peristaltic contraction is apparent to the hands applied to the parietes, or to the eyes. The external electrode I generally apply to the epigastric region, and is usually a large and broad sponge. The internal electrode must be sufficiently deeply introduced to insure its immersion in the water contained in the stomach. A patient describes the sensation in the stomach as devoid of pain, but one of rather active contraction of the viscus. As in the former case, my electrode is very simple, and as you will see, while I exhibit it to you here, it consists of a small stomach tube with two fenestræ; through the tube I have drawn a small insulated copper wire, letting the end come out of the lower fenestrum; this end I have denuded about 2 or 3 inches of its insulation, and have twisted into a small spiral, the size of the lumen of the tube. This spiral I have slipped through the fenestrum back into the tube, in such a manner that it appears within it, without being able to come in contact with the stomach. The upper end of the wire is also twisted into a small spiral for the reception of, and connection with, the battery wire.

Einhorn has recently advocated the use of a covered mandrel attached to an insulated wire. I consider the one I have just described will be found much more simple, and the safest that can possibly be used, and it assures at once, by its greater firmness, that the lower end of the electrode shall be immersed in the water contained in the stomach.

DOMESTIC CORRESPONDENCE.

Medical Teaching Methods.

To the Editor of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION:

Whilst this question of teaching medicine is going the rounds of the journals let me have my say on the subject. I consider that the present mode of teaching medicine should be reversed; or, in other words, the horse should be put in front of the cart instead of behind it. The lecturer or teacher goes to his class full of the subject matter, whilst his students know little of it. They sit like bumps on a log whilst their very eloquent teacher (?) tells them all about, or develops the subject.

Suppose the teacher says to his class that to-morrow, between the hours of 11 A.M. and 12 M., we are going to have the subject of typhoid fever for discussion, and I wish you

to familiarize yourselves fully with the subject; I will call on any one of the class to develop the subject. The next day at the designated hour Student A. is called on to go to the blackboard to divide the subject into parts. He writes on the blackboard—name, Typhoid Fever; what the name implies—History; symptoms—Pathology, Diagnosis, Prognosis, Differential Diagnosis, and Treatment. This done, Student B. is called on to give a definition of the words typhoid and fever, and what the words imply. C. is then called on to develop the symptoms; D. the history; E., diagnosis; F., prognosis; G., differential diagnosis; H., treatment. In this way the subject could be made interesting. The dullest or laziest should always be called on first to develop a subject, and so on to the brightest and most diligent, to finish the subject. After the subject had been developed by the students, anything pertaining to the subject that had not been developed by the students then it would be the teacher's duty to fill in omissions.

In this way, instead of the teacher going to his class crammed with the subject, both students and teacher would enter the class perfectly familiar with the subject, and the teacher would soon find he had no drones in his class, and there would be no napping. The practice of medicine with all its branches could be made interesting by this mode of teaching, and, what is most important, they would be taught to think and speak extempore. JOHN M. BATTEN,

309 Fifth Avenue, Pittsburgh, Pa.

Case of Mal-Assimilation of the Phosphates and Carbonates.

To the Editor of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION:

I would like to present to the profession through the columns of the JOURNAL an exceedingly interesting case of mal-assimilation of the phosphates and carbonates.

The patient is 13 years of age, of very nervous temperament, and has incontinence of urine. At home she is constantly doing things that she ought not to do. She goes to school and learns her lessons apparently without much effort. She eats and sleeps well, partaking largely of meat, but does not care for milk.

The condition of her mouth is as follows, and seems to the writer to offer a solution of the trouble: The teeth were covered completely by tartar, and the enamel was easily scraped off. When the tartar was removed the little girl seemed to be in great agony. The teeth would ache, sometimes in one tooth and sometimes in another; the pain was intense and neuralgic in character, lasting from ten minutes to one hour. There were no cavities, because the tartar, being alkaline, prevents the decay of the teeth. The child is taking plenty of nourishment, but the phosphates and carbonates are not assimilated, as indicated by the condition of the osseous and nervous systems, and also by the large amount of tartar on the teeth.

The writer presents the case to the profession for the reason that similar cases are becoming very common in this country, and the conditions are apt to be lost sight of by the physicians; he also hopes to obtain opinions from the profession as to the line of treatment that should be carried out, and trusts that a hearty response will be made through the columns of the JOURNAL. E. S. TALBOT.

To the Editor of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

Sir: In sending you the stenographic report of the Transactions of the American Electro-Therapeutic Association at its meeting in September, I presumed its value to you as news would be impaired by undue delay, hence the several speakers were not given an opportunity to correct the notes of their remarks. The discussions are therefore verbatim, and allowing for the possible existence of slight errors in notes that fill more than four hundred pages of manuscript, are an exact reproduction of what the speakers actually said. I well know that few physicians speak in public with the same directness and brevity with which they write, but if the reports of the discussions that occur at these great annual meetings are to be published immediately, as they should be, it becomes impossible to submit the separate notes of five different sessions to each speaker for recasting and emendation. The choice is plainly between verbatim reports and circulation in journals on the one hand, and re-written remarks and burial on book shelves on the other. Choosing the former alternative, as was done by the publication committee, it is to be regretted that a practical interregnum in the office of the secretary prevented the elimination of the slight errors alluded to. I should add, for the information of members and others interested therein, that the full proceedings of this meeting will appear only in your columns. Yours truly, G. BETTON MASSEY.

To the Editor of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION:

I was recently asked to see a child, whom I had attended in its last illness, to determine whether or not it was actually dead.

The child had been sick six weeks with influenza, and had finally succumbed to a complicating pneumonia. The illness had been very severe throughout, and it was only remarkable that it had lived as long as it did. I saw the child a few minutes before it died—at 6 P.M. Wednesday—at which time it was unconscious, and the respiration spasmodic and slow.

On Saturday afternoon, nearly three days after death, I was asked to examine the body. The mother called attention to the fact that the lips were red, and feared lest the child was not really dead. The lips were indeed red, but upon parting them it was found that the redness was confined to the exposed portion of the mucous membrane. One cornea was bright and glistening; the other was dull. The temperature of the body was not taken, but it was exceedingly cold to the touch, not only on the head and extremities, but also over the viscera. Rigor mortis was well marked, and the red translucency of the fingers, as seen by transmitted light, had disappeared, and the usual opacity of the dead body had taken its place. Careful auscultation of the heart failed to reveal any action of that organ.

To satisfy the mother, a string was tied about the wrist, to arrest the venous blood, should an imperceptible circulation be present. Nineteen hours later the hand had not swollen, or otherwise changed in appearance. Redness of the lips I had never before seen in a corpse, and the appearance was so strange, that I quite readily undertook to make careful observations as to the reality of the death. Very respectfully, W. S. CHRISTOPHER, M.D.

INCUBATION AND TRACHEOTOMY.—In a report of these operations done at the Boston City Hospital, Drs. Prescott and Goldthwaite (*Boston Medical and Surgical Journal*, No. 27, 1891), draw the following conclusions: Three hundred and ninety-two cases of intubation and 139 cases of tracheotomy have been reported, with a mortality rate of 79.59 per cent. in the former and 88.5 per cent. in the latter; 2,815 cases of intubation and 23,941 cases of tracheotomy have been collected and analyzed, showing comparatively no difference in the mortality rate of the two operations. The results depend more upon the nature of the epidemic than upon the operation. With intubation the results depend more upon the skill and experience of the operator than with tracheotomy. Thirty-seven cases were seen at least a year and a half after recovery from intubation, with perfect voice, and with nothing that would indicate any ulceration from pressure of the tube.—*Medical Record.*

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SATURDAY, FEBRUARY 13, 1892.

"THE GOOD BED-SIDE MANNER."

The true basis of the good bed-side manner is a large heart. Some expansiveness of the intellect is undoubtedly an advantage, but a humane and sympathizing nature outweighs all other qualities. The late Dr. FORDYCE BARKER has left a name as being one of the most winsome of the clinicians of his day and generation, and it is partially from the reflection that we do not now know his exact peer, that this pen has taken up this theme. The ages or generations repeat themselves measurably, and other BARKERS have been and will be, but our present feeling is that a bright and shining light has been extinguished. He would not have styled himself a physician of the old school, but such he was, however, to the extent of not yielding up all of sympathy to the utmost of science. He, at no part of his career, failed to have a winning way with his patients, and seldom did any physician inspire so complete a confidence. But as years revolved he became even more tender. His kindly courtesy was not reserved for the rich alone. On more than one occasion he has been known to bend over and kiss upon the forehead some poor woman in the hospital, who had been the patient subject of a serious operation. It was the impulse of the moment and an unmistakable index to the largeness of his heart; a passing benediction, as if one would have said "God bless you and heal you, my child."

A very winsome man as a surgeon, was WILLARD PARKER, who passed away from a busy life in 1884, generous and benevolent, even to a fault. That is to say, his stream of human kindness he would not stop even if some of it helped to refresh the undeserving. He was wholesome in appearance, bright-eyed and hearty; his mere advent was a blessing to many a despondent sufferer, and he seemed to serve as an embodiment of one of his favorite doctrines, that "after all, health is more interesting than disease, and a more important concern, both to the doctor and the patient." On one occasion he had been called into the country to visit an eminent senator of the United States. Hurrying from the railway station to the home of the patient, he tarried not to be announced, but bounded up stairs, two steps at a time, to be at once welcomed with, "Why, is that you, Dr. PARKER? I declare, I feel better already." He was one of those who form a living answer to the captious question of the skeptic, when he asked, "And why has not God made health contagious as well as disease?" There are infectious properties of soul—as charity, fortitude, good humor—which react in a saving way upon the corporeal parts of men. Cheerfulness is in some sense a duty imposed upon the practitioner, which, aided by the "light address," the *hilaris vultus* of Celsus, has the power of inspiring confidence. The impression which it conveys is that the professional man is the possessor of abundant resources and is the master of them. In this view of the case, some of the early law-givers, as in the reign of Henry VII, must have erred when they sought to legislate a sad countenance upon the healing fraternity. A statute of that reign ordained that the practice of medicine should be limited to those persons "that be profound, sad and discreet, grandly learned and deeply studied in physic." Even great anxiety for the welfare of the patient may be overdone, as regards the visage of the practitioner.

In the *Hospital Gazette* is given the following incident, said to have been related by SIR RICHARD QUAIN, of Dictionary fame, which gives point to our moral: He had been in attendance upon the wife of an old patient, and at one of his visits, the husband set the doctor to thinking with the remark: "I greatly appreciate the anxiety you feel for my poor wife, but do not let her see it again, for after you left the room, she asked me if you were the undertaker." Now, as DR. QUAIN rather prided himself on having "the good bedside manner," he felt as if he had been called upon to revise a recent edition before it had been put on the market. As a man may be dignified without being morose, so a physician must be occupied with the welfare of his sick charges, without carrying the weight of it into the sick-room. The choice of a high ideal at the expense of the lower but more lucrative motives, and the conscious devotion to a noble calling, have helped successive generations to present a bold and cheerful front to an imperishable enemy, disease. There is an old book, the "Anatomie of the Bodie of Man," written by THOMAS VICARY, chief surgeon of St. Bartholomew's Hospital from 1548–62, which shows that medicine has in the earlier times claimed the allegiance of noble-hearted and clear-speaking men. It says that the doctor must be learned, must know his principles, be seen in natural philosophy, in grammar, must

speak congruously in logic, speak seemly and eloquently, know things natural and non-natural, and above all, be good-looking—for whose face is not seemly, it is impossible for him to have good manners. The "good looks" here advocated by the ancient surgeon, imply not so much the fine features of physical beauty, as of the countenance irradiated by good feeling and good deeds. MR. ROBERT LOUIS STEVENSON, the well-known English author, has been a long-time sufferer from pulmonary troubles, and has therefore been thrown much in the society of medical men. He has shown his appreciation of their kindness to him in the dedication to them, as a class, of one of his books, called "Underwoods." A paragraph therefrom will be germane to the opinions above expressed; it reads as follows: "Generosity the physician has, such as is possible to those who practice an art, never to those who drive a trade; discretion, tested by a hundred secrets; tact, tried in a thousand embarrassments, and what are more important, Herculean cheerfulness and courage: so it is that he brings air and cheer into the sick-room, and often enough, though not as often as he wishes, brings healing."

DR. WEIR MITCHELL, in the current number of the *Century*, has given some graphic sketches of the bad traits of practitioners at the bedside. They may be found in "Characteristics"—a thinly medicated serial—where he speaks briefly of the man who is by nature tender in his contact with the sick, but also fo the imitation sympathizer who does not long impose upon the sick; "for there is no place," he says, "where good breeding has so sweet a chance as at the bedside. There are many substitutes, but the sick man is a shrewd detective, and soon or late gets at the *true man inside* of the doctor."

INEBRIETY AND RAILROAD ACCIDENTS.

Statistics for 1891 show that in round numbers, over twenty-five hundred persons were killed instantly, and over twenty-two thousand were injured, by accidents on railroads in this country. The mortality of passengers was greater in 1891 than for several years past. These figures are very startling, and indicate a greater fatality, comparatively, than in any of the modern wars. One of the causes is clearly the free use of spirits by the operatives and trainmen. Most of the companies recognize this, and have adopted rigid rules against the use of spirits, and promptly discharge men who are seen drinking. The efforts to employ only total abstainers are a partial success in most companies. The trainmen on the trunk lines, as a rule, are of the better class, and give but little evidence of the use of spirits. Yet some of the severe accidents of the year pointed clearly to a state of mental confusion and recklessness that come from alcohol, in those who were responsible. Many men who claim to be temperate, use spirits at home as a domestic medicine, and frequently by the advice of some unthinking physician. These persons never drink in public, or for social purposes, and yet they are dangerous alcoholics, because unsuspected, and likely any moment to do strange, insane acts.

Psychologically, railroad men, of all others, are most exposed to this form of drinking. The nerve and brain strain, and irregularities of living, sharply predispose to exhaustion, insomnia, and all its train of associate dyspepsias and neuralgias. Alcohol in any form is a most seductive narcotic. The mental activity and attention constantly required in every position, makes railroad employment far more exhausting, and perilous to brain health. Coupled with this is associated a sense of peril and danger that is a perpetual strain on the nerves. The irregularities of the work, preventing regular rest, sleep, food and change, are followed by functional, then organic diseases. The kidneys, heart, stomach and coördinating centers fail first, and the use of spirits covers up these symptoms of exhaustion most effectually. The brain fails, although this symptom is less prominent, and duty is performed more automatically, and emergencies are attended with brain confusion unexpected and unusual. This is the period when medical advice may be fatal. The man may be a secret alcoholic drinker, and a prescription with spirits may unmask and precipitate a long train of degeneration. Or, if an abstainer, the alcoholic narcotic may be so grateful and pleasing as never to be abandoned. Railroad companies cannot prevent their employés from drinking spirits. They can force an appearance of temperance in the performance of duty, but they cannot prevent brain injury from the secret use of alcoholics. Hence accidents will follow, because responsible persons have weakened and impaired judgments. Shorten the hours of labor, give responsible men more time to rest, with better opportunities to live regularly, and a very important means of prevention will be applied.

Surgeons of railroad companies have a splendid field for prevention, in advising and regulating the health of operatives. It has been asserted that one-third of all accidents are due to brain failure and confusion depending on the use of some form of spirits. Whether this is true or not, a certain number of accidents can always be traced to the damaged alcoholic brains of some one. A certain number of night trainmen are discharged every year for using spirits. This would not occur if the officers of the company had a medical superintendent of employès. Trainmen and all responsible persons should be inspected daily with more care and caution than engines or the machinery of the road. A single ac-

cident cost a leading road over two million dollars. The failure of an over-worked telegraphic operator, who was keeping awake on spirits, and a conductor who drank in secret were the cause. A tired-out brakeman with a flask of spirits in his pocket failed to flag an express, and a frightful accident followed. A railroad surgeon to attend to the wounded is of very small importance compared with a medical superintendent, who would have regulated the duties and prevented over-worked, exhausted men from being placed in positions requiring clear reasoning and healthy brains. The medical side of railroading is a sanitary field not occupied as yet. The terrible fatality of the past year has a loud call for means and methods of prevention. Hundreds of men are trying to find mechanical means and remedies, and the surgeon should be equally active to point out the risks from the service of brain-exhausted and defective men. Moderate drinkers and those who drink while off duty for medicinal purposes, or otherwise, are more dangerous than defective, weakened engines. The companies are ready to welcome any means which will lessen the risk and increase the safety of its work. Evidently not far away in the future the brain-and-muscle service of railroads will be subject to medical inspection and control, and many sources of accidents that occur now will be effectually prevented. The companies will learn that if they expect its army of responsible men to be sober and of clear, healthy brains they must regulate the conditions and surroundings of the service to assist and favor this condition. The farce of pretending to employ only temperate men, and permitting the free sale of spirits on the trains and stations on the road, will disappear. Nothing can be more stupid than this exposure of operations to the free use of spirits under the worst possible conditions. A medical supervision would correct this. Railroad surgery compared with railroad sanitation is practically nothing. No matter what rules or regulations are in force, so long as spirits are sold indiscriminately on the road and on trains accidents will follow from defective judgment caused by alcohol. As long as men holding responsible positions are over-worked and neglected they will find relief and medicine in alcohol, and some time, and some where, make a fatal mistake for the company. This record of death and injury has a medical side of great interest that must come into prominence in the near future.

ADULTERATION OF FOODS AND DRUGS.

An evidence of progressive enlightenment comes to us in the form of "A Bill recently introduced in the United States Senate, for preventing the adulteration of food and drugs, and for other purposes."

This bill is so commendable and worthy of the attention of the medical profession, that we take pleasure in giving it space in our pages. Our only regret is that there is not a Department of Public Health to take hold of the measure and conduct it in the interests of the people. In fact, the bill is an indication of the necessity for such a Governmental Department. Those of our readers who have not already urged that measure upon their Congressional representatives, will be good enough to do so at once, also directing attention to the accompanying bill. Delays are always dangerous, and in the practice of medicine, many a time mean death of the patient. So in the pushing of the Bill creating a Department of Public Health. Delayed efforts may place it in a condition of somnolency that will require a good deal more shaking and stimulation to effect its passage than if pushed with vigor at this immediate time. If you have not already done so, write to your Congressional Representative and United States Senator, and do this at once.

* * * * *

A Bill introduced in the United States Senate by Mr. Paddock, for preventing the adulteration and misbranding of food and drugs, and for other purposes:

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That, for the purpose of protecting the commerce in food products and drugs between the several States and Territories of this Union and foreign countries, the Secretary of Agriculture shall organize in the Department of Agriculture a section to be known as the food section of the chemical division, and make necessary rules governing the same, to carry out the provisions of this act under direction of the chief chemist, whose salary for such increased work shall be in addition to his present salary the sum of fifteen hundred dollars per annum; and whose duty it shall be to procure from time to time, under rules and regulations to be prescribed by the Secretary of Agriculture, and analyze, or cause to be analyzed or examined, samples of food and drugs sold or offered for sale in any State or Territory other than where manufactured. The Secretary of Agriculture is hereby authorized to employ such chemists, inspectors, clerks, laborers and other employés as may be necessary to carry out the provisions of this act.

SEC. 2. That the introduction into any State or Territory from any other State or Territory or foreign country of any article of food or drugs which is adulterated within the meaning of this act is hereby prohibited, and any person who shall ship or deliver for shipment from any State or Territory or foreign country to any other State or Territory, or who shall receive in any State or Territory from any other State or Territory or foreign country, or who, having so received, shall deliver, for pay or otherwise, or offer to deliver to any other person, any such article so adulterated within the meaning of this act, shall be guilty of a misdemeanor, and for such offense be fined not exceeding two hundred dollars for the first offense, and for each subsequent offense not exceeding three hundred dollars, or be imprisoned not exceeding one year, or both, in the discretion of the court.

SEC. 3. That the chief chemist shall make, or cause to be made, under rules and regulations to be prescribed by the Secretary of Agriculture, examinations of specimens of food and drugs which may be collected from time to time, under

rules and regulations to be prescribed by the Secretary of Agriculture, and under his direction in various parts of the country, and publish in bulletins the results of such analyses. But the names of manufacturers or venders of such foods or drugs analyzed shall in no case be published in such bulletins until after conviction in the courts of violation of this act. If it shall appear from such examination that any of the provisions of this act have been violated, the Secretary of Agriculture shall at once cause a report of the fact to be made to the proper United States district attorney, with a copy of the results of the analysis duly authenticated by the analyst under oath.

SEC. 4. That it shall be the duty of every district attorney to whom the food section shall report any violation of this act to cause proceedings to be commenced and prosecuted without delay for the fines and penalties in such case provided, unless, upon inquiry and examination, he shall decide that such proceedings cannot probably be sustained, in which case he shall report the facts to the food section.

SEC. 5. That the term "drug," as used in this act, shall include all medicines for internal or external use. The term "food," as used herein, shall include all articles used for food or drink by man, whether simple, mixed, or compound.

SEC. 6. That for the purposes of this act an article shall be deemed to be adulterated—

In case of drugs:

First—If when sold under or by a name recognized in the United States Pharmacopœia it differs from the standard of strength, quality, or purity according to the tests laid down therein.

Second—If when sold under or by a name not recognized in the United States Pharmacopœia, but which is found in some other pharmacopœia or other standard work on materia medica, it differs materially from the standard of strength, quality, or purity according to the tests laid down in said work.

Third—If its strength or purity fall below the professed standard under which it is sold.

In the case of food or drink:

First—If any substance or substances has or have been mixed and packed with it so as to reduce or lower or injuriously affect its quality or strength, so that such product, when offered for sale, shall be calculated and shall tend to deceive the purchaser.

Second—If any inferior substance or substances has or have been substituted wholly or in part for the article, so that the product, when sold, shall tend to deceive the purchaser.

Third—If any valuable constituent of the article has been wholly or in part abstracted, so that the product, when sold, shall tend to deceive the purchaser.

Fourth. If it be an imitation of and sold under the specific name of another article.

Fifth. If it be mixed, colored, powdered, or stained in a manner whereby damage is concealed, so that such product, when sold, shall tend to deceive the purchaser.

Sixth. If it contain any added poisonous ingredient or any ingredient which may render such article injurious to the health of the person consuming it.

Seventh. If it consist of the whole or any part of a diseased, filthy, decomposed, or putrid animal or vegetable substance, or any portion of an animal unfit for food, whether manufactured or not, or if it is the product of a diseased animal, or of an animal that has died otherwise than by slaughter: *Provided*, That an article of food or drug which does not contain any added poisonous ingredient shall not be deemed to be adulterated—

First, in the case of mixtures or compounds which may be now or from time to time hereafter known as articles of food under their own distinctive names, and not included in definition fourth of this section;

Second, in the case of articles labeled, branded, or tagged so as to plainly indicate that they are mixtures, compounds, combinations, or blends;

Third, when any matter or ingredient has been added to the food or drug because the same is required for the production or preparation thereof as an article of commerce in a state fit for carriage or consumption, and not fraudulently to increase the bulk, weight, or measure of the food or drug, or conceal the inferior quality thereof: *Provided*, That the same shall be labeled, branded, or tagged, as prescribed by the Secretary of Agriculture, so as to show them to be compounds: *And Provided further*, That nothing in this act shall be construed as requiring or compelling proprietors or manufacturers of proprietary medicines to make public their trade formulas;

Fourth, where the food or drug is unavoidably mixed with some extraneous matter in the process of collection or preparation.

SEC. 7. That every person manufacturing or exposing for sale, or delivering to a purchaser, any drug or article of food included in the provisions of this act, shall furnish such drugs or articles of food to any person duly authorized by the food section to receive the same, and who shall apply to him for the purpose, and shall tender him the value thereof in a sample sufficient for the analysis of any such article or articles in his possession, and in the presence of such dealer and agent of the food section, if so desired by either party; said sample shall be divided into three parts and each part sealed by the seal of the food section. One part shall be left with the dealer, one delivered to the food section, and one deposited with the United States district attorney for the district in which the sample is taken. Said manufacturer or dealer may have the sample left with him analyzed at his own expense, and if the results of said anaysis differ from those of the food section, the sample in the hands of the district attorney shall be analyzed by a third chemist, who shall be appointed by the president of the Association of Official Agricultural Chemists of the United States, in the presence of the chemist of the food section and the chemist representing the dealer, and the whole evidence shall be laid before the court.

SEC. 8. That whoever refuses to comply, upon demand, with the requirements of section seven of this act shall be guilty of a misdemeanor, and, upon conviction, shall be fined not exceeding one hundred nor less than ten dollars or imprisoned not exceeding one hundred nor less than thirty days, or both. And any person found guilty of manufacturing, offering for sale, or selling an adulterated article of food or drug under the provisions of this act shall be adjudged to pay, in addition to the penalties heretofore provided for, all the necessary costs and expenses incurred in inspecting and analyzing such adulterated articles which said person may have been found guilty of manufacturing, selling, or offering for sale.

SEC. 9. That in prosecutions for violations of this act, proof of the act done shall be held to imply knowledge and intent on the part of the accused, unless such knowledge and intent shall be disproved on the trial. If it be shown that said dealer is innocent of any intentional fraud, then the action in court shall lie against the dealers having furnished the accused the articles in question and these dealers shall be parties to the suit.

SEC. 10. That this act shall not be construed to interfere with commerce wholly internal in any State, nor with the exercise of their police powers by the several States.

SEC. 11. That, for the purpose of enabling the Secretary of Agriculture to carry this law into effect, there is hereby

appropriated, out of any moneys in the Treasury not otherwise appropriated, the sum of one hundred thousand dollars.

DETERMINATION OF DEATH.

Occasionally the physician is called upon to determine whether a body supposed to be dead is really so, or only apparently so.

When the question does come, it brings with it a great responsibility, for the conscientious physician is compelled to admit that there is no single, certain sign of death, before putrefaction becomes apparent. It is upon this ground that the advocates of cremation have based some of their strongest arguments.

But while there is no single pathognomonic sign of death, a correct conclusion can hardly fail to be reached, in a given case, by the combination of conditions present.

The question usually arises because of some unusual condition about the corpse. The temperature of the body may remain high, rigor mortis may be absent, the lips may remain red, or some other unusual condition may be present.

The cessation of respiration and circulation must be regarded as proof of death. But in many cases of coma, these two functions are continued to so slight a degree as to be almost imperceptible. Persons asphyxiated by drowning, and infants asphyxiated during birth, have been resuscitated when all apparent signs of life had ceased for some time. TAYLOR (Medical Jurisprudence) relates the case of COL. TOWNSHEND, reported by CHEYNE, who could voluntarily produce a cessation of respiration and circulation to such a degree that neither act could be detected. Yet the longest period of this apparent death was one-half hour. In hybernating animals, the action of the heart can always be detected, although it is very slow, and very feeble. In cataleptic conditions, the feeble action of the heart can be detected by the stethoscope; moreover, the body remains warm. Rigor mortis can be differentiated from neurotic spasmodic conditions by the fact that it involves all the muscles. In cases of sudden death, or death from convulsive poisons, or coal gas, rigor mortis appears quickly and disappears quickly, so that when the body is examined, this sign may not be apparent.

The dead body ordinarily loses its heat quite rapidly, but this is not always the case; we have ourselves seen a temperature of 105° F. in the pericardial sac, two hours after death.

As to the color of the dead TAYLOR records two very interesting cases. One by SNOW, who was once called to see a young woman after she had been dead three days, and whose face had suddenly become so suffused and red, that her friends doubted the reality of her death. After a time, however, the color abated, and the commencement of putrefaction clearly proved that she was dead. TAYLOR himself once saw the cheeks of a corpse acquire a florid red color, between the third and fourth day after death, when rigidity had ceased.

With a careful consideration of all the conditions of death, even in the absence of any pathognomonic sign, it can hardly be supposed that a medical man could make a mistake in a case of this kind.

In another column will be found a communication from a correspondent upon this peculiar subject, which has been the occasion for these observations.

OLEOMARGARINE.

A paper upon this subject, from the pen of G. C. CALDWELL, B.S., Ph.D., Professor of Agricultural and Analytical Chemistry in Cornell University, appears in a late number of the *Medical News*.

This substance has become an important article of food, and its use is rapidly extending, so that it behooves physicians to acquaint themselves with its mode of manufacture, its dangers and its uses.

According to PROFESSOR CALDWELL, caul fat is first cooled, and washed, and then rendered at a temperature of 120° to 150° F. The clear fat is then run into wooden tanks, and the greater part of the stearine, the hard fat contained in it, allowed to crystallize out. The liquid fat separated from the stearine is called "oleo oil." A similar product, prepared from lard, is allowed to retain its stearine, and is known by the trade name of "neutral." The "oleo oil" and "neutral" are then mixed in certain proportions, and constitute "oleomargarine." This substance is free from flavor and color, and to become "butterine" is churned with milk or cream, by which a certain proportion of the flavoring elements of butter are mixed with it, and impart to it the taste and odor of natural butter.

Physicians are not concerned with the effect which the manufacture of this article may have upon the butter trade, but are deeply interested in the wholesomeness and the nutritive value of this product.

It may be stated at once, that it has not yet been shown to be a medium for the transmission of pathogenic germs, and there can be but little doubt but that it is much cleaner than the bulk of the butter put on the market.

Some laboratory experiments as to its digestibility have been made by DR. R. D. CLARK, chemist to the New York State Dairy Commissioner. DR. CLARK performed some emulsionizing experiments with different fats and pancreatic juice, and found that, next to cod-liver oil, butter gave the finest emulsion in twelve hours, while oleomargarine still had many large globules, left unchanged. DR. CLARK also proved that, while butter melts to a clear, limpid liquid in thirty-five minutes, at 100° F., oleomargarine was but slightly changed.

It must be admitted, however, that such experiments show very little, as they are far from imitating the processes of natural digestion. Experiments, however, made by ATWATER and others, by RUBNER, of Munich, and MAYER, of Germany, show that healthy individuals digest almost as great a percentage of oleomargarine as of butter, the difference, less than 2 per cent., being so slight as to be unimportant.

It may therefore be conceded that "butterine" is a clean product, very digestible, and not yet shown to be, either directly or indirectly, a cause of disease.

And yet its nutritive value is still to be shown. Its constituents are all natural foods, and no doubt perform their usual functions in the organism; but whether they perform the same functions, and subserve the same ends as natural butter does, is not yet known and should not be assumed.

Sterilized milk differs from raw milk only to a slight degree from a chemical standpoint, yet the nutritive values of these two substances are decidedly different. Fresh raw milk contains a something not yet separated by the chemist, but named by our English brethren the antiscorbutic element. This intangible element is missing in sterilized milk, and infants fed upon it are liable to develop "land scurvy" and to present other evidences of incomplete nutrition. This, indeed, is the great danger of sterilized milk, and is the one drawback which prevents its more prolonged use.

Butter is a food so extensively used that it can hardly be believed that its use has developed simply as a gratification to the palate, but rather because it adds something to the nutrition which the other fats used as foods do not. It is upon the line of nutritive sufficiency that substitutes for butter must be studied.

INTERNATIONAL CONGRESS OF GYNECOLOGY AND OBSTETRICS.

Under the above title, the first meeting of the gynecologists and obstetricians of the world will be held at Brussels, Sept. 13 to 19, 1892. It is proposed that the Congress shall assemble every four years, and it is to be hoped that the neutral ground selected as the first place of meeting, will secure an attendance from the various countries of Europe as well as America. Three questions are proposed for discussion at this first Congress:

1. Pelvic Suppurations, referee, Dr. A. Segond, of Paris.

2. Extra-uterine pregnancy, referee, Dr. A. Martin, of Berlin.

3. Placenta prævia, referee not yet named.

The secretary general of the Congress is Dr. Jacobs, of Brussels. The secretary for America is Dr. Fernand Henrotin, 353 La Salle Ave., Chicago. Dr. Henrotin is desirous of obtaining the names and addresses of the executive officers of all the gynecological and obstetrical societies of the United States, in order that he may forward to them promptly all official communications relating to the Congress.

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We are glad to be able to congratulate the officers of the Congress on their selection of an American secretary. The honor has been worthily bestowed. Having never been a writer, Dr. Henrotin and his work are unknown except to his personal acquaintances. These however, are well aware of his personal and professional worth, his mental breadth, his modesty, and his ability. He well represents what is best in American gynecology.

THE NEW YORK BOARD OF HEALTH.—The appropriation of the City Board of Health of New York for 1892 amounts to $435,000. This is an increase over last year of about $15,000, but is an apparent decrease in current expenditure account, since $30,000 of the grant must be devoted to the erection of a new reception hospital.

COFFEE.—Whereas, it has been asserted that the use of coffee promotes or causes lesions of the heart (commonly termed heart disease), members of the A. M. A. are hereby respectfully invited to contribute any information on the subject known to them, pro or con, so that, so far as is possible, this question may be settled for our organization.

Address E. CUTTER, Secretary, 1730 Broadway, New York.

RAILROAD RATES FOR MEDICAL ASSOCIATION MEETING.—If the Transportation Committee of the American Medical Association has not as yet made final arrangements for a reduced railroad rate for the June meeting at Detroit, we would suggest that the necessary steps be taken as early as practicable. Mr. L. S. Allen, Assistant General Passenger Agent of the Baltimore & Ohio Railroad, whose office is in "The Rookery," in this city, would take pleasure in urging a low rate in Central Traffic Association territory, and Mr. Chas. O. Scull, the General Passenger Agent of the B. & O., whose address is Baltimore, Md., would be equally pleased to arrange such matters among the eastern lines. The B. & O. officials have always displayed a most liberal spirit in their dealings with the Association, and have granted all concessions consistent with the policy of their company.

SELECTIONS.

SIR ANDREW CLARK'S METHOD OF TEACHING CLINICAL MEDICINE.—Dr. Clark is known as most skilful physician and able teacher of medicine. In a recent lecture (*London Lancet*) he discusses the several methods followed by clinical teachers, and then describes his own. He says that "the criterion of true instruction is not *acquiring* but *thinking*. Genuine clinical teaching requires the active coöperation of teacher and student, the assimilation as well as the acquisition of knowledge; seeing, handling, doing as well as trying, failing and succeeding."

Dr. Clark's method is "to help his students to get plain, practical clinical instruction, and so to get it that they may pass from the hospital into practice accustomed to its

methods and cautions, without fear of disaster, and ready for sound, honest work."

An unknown case is brought before him and his class, and he proceeds to deal with it as nearly as is possible in the same manner as he would in private practice.

He lays importance upon always following a definite plan of procedure; it may not be the best, but it is far better than no plan. He first asks the patient to tell the symptoms of which he complains, how long he has been ill, and in what way his illness began. Secondly, he endeavors to learn from the patient the number and nature of the troubles he has suffered in the course of his life. Thirdly, he makes the acquaintance of the medical history of the patient's family.

Having acquired this information and found the patient's statement points to the lungs as the chief seat of the malady, he investigates these organs with all the modern aids to diagnosis. This completed, he separately investigates the conditions of the circulatory, digestive, genito-urinary, cutaneous, and nervous systems. Thus he ascertains the manner and degree in which the constitution is being affected by the disorders or diseases which may have been brought to light.

Now he is able to state in order the symptoms and signs of the patient's disease, and the signs and symptoms of disorder of the disease which may exist casually or independently elsewhere than in the lungs. He is able to elicit their relations, to interpret their meaning, and to set forth their bearing upon the future course and complications of the case.

Now he can discuss the probable nature of the malady and frame the diagnosis. This done, he considers the probable future of the case, settles the report to be made to the friends, and finally determines the treatment to be pursued. From time to time the case is re-examined in order to correct or confirm the diagnosis, to determine the way in which the disease is going, and to consider the use or uselessness of remedies.

Dr. Clark assures his students that "if they adopt this plan, if they follow it step by step, if they follow it unintermittingly, and if they bring all their collateral knowledge to bear upon its development, they will be preserved from confusion in emergencies, they will acquire a growing interest in their work, their minds will have formed a precious habit, their whole nature be lifted up, and in due season their labors will yield fruit both abundant and good. Further, in the carrying on their work in this manner, they will have trained their understandings, disciplined their hearts, and exercised their wills to the utmost of their capacities. They will become cultivated men, and be able to hold their own on topics of mutual concern with the public in the gate, and they will be prepared to deal successfully with those problems of the moral life from which few cases of disease are entirely exempt."

We heartily congratulate Dr. Clark's students upon the rich instruction they receive at his hand. There are but few genuine teachers of medicine after his pattern, and those that are favored with their instruction should be doubly grateful.

All clinical teachers could not fail to do better work by the study of Dr. Clark's method. Unfortunately, very much of clinical teaching is designed to pilot patients into the consulting room of the teacher, and not for the education of the student, so that he may become an independent, wise, efficient physician. For such the methods pursued by Dr. Clark will have no attraction. Only for those who love to teach medicine so that their students may become physicians of the highest type will Dr. Clark's lesson come as a welcome gift.—*American Lancet.*

The New Hospital of the Medical Department of the University of Michigan.—On January 20th this institution celebrated the completion of its new one-hundred-thousand-dollar hospital. From one to five P.M., its rooms were crowded with appreciative visitors. At 7 P.M., the dedicatory exercises were held in the large University Hall. These were attended by some fifteen hundred people. President Angell gave a sketch of the upbuilding of the hospital, and described the special advantages to the students and the citizens of the State. Of the one hundred thousand dollars, the little city of Ann Arbor contributed twenty-five thousand dollars for the erection of this new building. Hence it was fitting the Mayor, Mr. Doty, should speak of the relations of the City to the University. The Rt. Rev. Bishop Gillespie, as a member of the State Board of Charities and Correction, spoke of the good to come from the new hospital to the institutions under his care. Finally, the eloquent Dr. A. L. Gihon, of the U. S. Navy, spoke of the new hospital as related to medical education in general. Following these exercises, the Medical Faculty entertained a large number of invited guests at a reception in Newberry Hall.

During the two days previous the members of the Medical Faculty vied with each other in their lavish entertainment of visiting physicians, at breakfasts, lunches and dinners, exhibitions of their new hospital, and all matters relating to the medical department. The occasion was made to increase the esteem and popularity of this institution among all classes.

In this new hospital are housed both the homœopaths and the regular patients belonging to the two medical schools of the University. The new facilities thus furnished for the teaching of clinical medicine and surgery are a great improvement upon those hitherto enjoyed.—*American Lancet.*

Treatment of Pneumonia.—Dr. G. W. Balfour (*Edinburgh Medical Journal*) says:

Whether, therefore, we hold old-fashioned or new-fashioned views as to the causation of pneumonia, the treatment of it by chloral would seem to be equally appropriate from a physician's point of view; while a patient cannot but regard as both agreeable and suitable a remedy which soothes pain, stops cough, and relieves insomnia. Chloral does all this, but it does more, it really seems to shorten the duration of the disease; or, as we may put it, to favor an early crisis. Having seen pneumonia treated in almost every imaginable manner, from large bleedings to colored water, I have no hesitation in saying that, so far as I am capable of judging, the treatment of pneumonia by chloral is that which gives the patient most relief from his sufferings, which more than any other favors an early crisis, and which appears to have no tendency to increase the mortality, if it does not indeed diminish it, which would be difficult to prove.

For reasons already given, I always give in pneumonia chloral—Liebreich's chloral, none other is safe—dissolved in infusion of digitalis. The dose of chloral and of digitalis must vary with the age of the patient. For an adult I prefer to give for a first dose twenty grains of chloral in half an ounce of infusion of digitalis, the subsequent dose being ten grains of chloral in half an ounce of infusion of digitalis every four hours, continued till the temperature falls to normal, then to be replaced by some appropriate tonic. After the first dose, if it be one of twenty grains, or after the second or third dose, if we begin with ten grains, the pain and cough cease, the patient dozes all day and sleeps soundly during the night; the glutinous sputa either cease entirely or become changed to a scanty mucous phlegm easily expectorated, the pulse drops, the temperature falls, the disease is arrested, and the patient gradually convalesces. A jacket

poultice is a useful adjuvant, which may be, however, very advantageously replaced by a sheet of cotton wool. An appropriate diet cannot, of course, be dispensed with.—*American Lancet.*

RESTRICTED DIET VERSUS PREMATURE LABOR IN CONTRACTED PELVIS.—Dr. Prochownick has been discussing (*Brit. Med. Jour.*) the questionable procedure of inducing premature labor in cases of contracted pelvis, and reports three successful cases in which the necessity for premature delivery was averted by controlling the diet during gestation. The principle of the dietary consists in the restriction of the quantity of fats ingested and stored away by the mother or the fœtus, much upon the plan pursued in the treatment of obesity. The prohibited articles are chiefly fluids, sugar, and starch. This diet only slightly reduces the strength of the mother, and does not appear prejudicial to the child in the experience thus far reported. Dr. Prochownick considers that a thin child, born at full term, has a better chance of living than a plumper infant born prematurely. The exposure to air at the seventh month, and the subsequent artificial feeding, involve far greater risks than the proposed reduced nutrition during two month's longer residence in utero, and the golden admonition is recalled that that triumph only is perfect when the child as well as the mother is saved. The paper does not state what influence this course exerted upon the formation of the bones of the child's head and the effect upon their delivery. The narrowest conjugate diameter of the pelvis in three cases of successful delivery was 3.94 (nearly 4) inches.—*Arch. Gyn. Obs. and Ped.*

PASSAGE OF THE BACILLUS OF TUBERCULOSIS FROM THE MOTHER TO THE FŒTUS.—Birch-Hirschfield and Schmorl (*Beitrage zur Path. anat. und zur allg. Path.*, 1891, p. 429; *Brit. Med. Jour.*), have put on record a case which they claim is the first in which it has been definitely proved that in the human subject tubercle bacilli pass from the mother to the fœtus. The patient was a young woman who, shortly after the commencement of her first pregnancy began to show signs of phthisis: these gradually become more marked, and she succumbed at the seventh month of her pregnancy. Immediately after the death of the mother the fœtus was removed by Cæsarean section. The necropsy on the mother showed abundant evidence of phthisis; not only in the lungs, but in other organs, tuberculosis was detected. Although the fœtus had been alive shortly before the death of the mother, it was dead when it was removed. The chest was at once opened, but there was nothing noteworthy about the lungs. The fœtus was then taken to the laboratory, the surface of the abdomen was washed with perchloride of mercury, and the cavity was opened with sterilized knives. No tubercles could be seen on any of the organs. Minute pieces of the liver, the spleen, and the kidney were placed in the abdominal cavity of two guinea pigs and a rabbit with all antiseptic precautions. One of the guinea pigs died in fourteen days, and tubercles were found in different parts of the abdominal cavity. The second one was killed about six weeks after inoculation, as it was clearly ill, and many tubercles were found in the peritoneal cavity. The rabbit lived three months; on its death many tubercles were found in the liver and the lung. Tubercle bacilli were found in the umbilical cord and the blood of the umbilical vein.—*Arch. Gyn. Obs. and Ped.*

BORIC ACID, INTERNALLY, IN TYPHOID FEVER.—Dr. L. E. Keegan reports on 52 cases of typhoid fever in which he employed boric acid with success, internally, in doses (according to *Bull. Gén. de Thérap.*) of 10-20 grains [0.6-1.2 grams] every 4 hours. Tympanites and diarrhœa rapidly diminished, the tongue became moist and clear, and the general condition improved considerably. In two cases, it even appeared as if the disease had been aborted by this treatment.

The boric acid may be combined with other antiseptics, as in the following formula:

Boric Acid, ℥ (2 gms.)
Beta-Naphthol ℥
Bismuth Salicylate ℥
Salol ℥
Dispense in 8 wafers!—One, 4 or 5 times daily.
—*Merck's Bulletin.*

QUADRUPLETS.—Dr. James A. Meek, of Bunker Hill. Ind., sends us the following interesting case (*Ind. Med. Jour.*): On the night of November 14, I was called to visit Mrs. ——, living three miles southwest of this place, in her fifth confinement. On arriving at half past nine o'clock I was informed by Dr. O. C. Irvin, of El Paso, Texas, who was visiting the family, and who is a brother-in-law of Mrs. ——, that the labor was over, and that four living girl babies were born, remarking that he did not think he had let any get away. For a time we had business giving attention to the mother and four little ones. They were all perfect and well formed, though small, not averaging over three pounds each. One of them died the next morning; the remaining three and mother are doing well. There was one placenta, and each child was enclosed in a separate sac.—*Med. Review*, St. Louis.

AMENORRHŒA OF SCHOOLGIRLS.—Dr. T. A. Reamy (*Cin. Lancet Clinic*), in discussing the amenorrhœa of anæmia, common to schoolgirls, says: (1) She must leave school, and must not even study at home. (2) She must spend several hours each day in the open air, either walking or riding. In winter she must of course be warmly clad; but must wear no sheepskins or other chest-protecting pads. Standing in the open air, she must be induced to breath deeply with the mouth closed; this should be done for at least fifteen or twenty minutes, and be repeated at least twice a day. Nothing that can be done will more rapidly improve the character of her blood. (3) She must sponge her extremities and body each morning on arising from bed. The water must be of the temperature of the room, and she must practice friction freely with an ordinary towel. (4) She must drink plenty of milk and eat plenty of beefsteak. (5) She must take small doses of iron, combined with some bitter tonic, three times a day. Improvement may be somewhat slow, but if this course is faithfully carried out a perfect cure will result, and her education may then be finished.

If this course or its equivalent be not followed, these cases will go from bad to worse, and finally die of pulmonary tuberculosis.—*Arch. Gyn. Obs. and Ped.*

PELVIC INFLAMMATION IN WOMEN—A PATHOLOGICAL STUDY.—Dr. W. W. Potter, of Buffalo, read a paper with this title before the Mississippi Valley Medical Association at its recent meeting at St. Louis.

The author affirmed that pelvic inflammations and their residues constitute about one-third the diseases the gynecologist treats, hence the importance of frequent discussions of all moot questions relating to the subject. He briefly reviewed the anatomical relations of the pelvic organs, calling attention to their enormous blood and nerve supply, which became both their weakness and their strength. He contrasted the pathology of Bennet (1843) with that of Emmet (1873), and the latter with the teachings of Tait, Price, Hegar, and McMurtry of the present age. He referred to the pathological studies of Bernutz and Goupil of thirty years ago, and affirmed that the observations of the present had served to confirm the correctness of these pioneers.

He next asserted that the pathology of to-day had been established by operative surgery, which had shown that pelvic inflammation begins in the tubes or ovaries and extends to adjacent structures through absorption or by contiguity; that it almost never begins in the cellular tissue, but may be carried there through the tubes and ovaries by infections, either specific, puerperal, or traumatic. He affirmed that the inflammation was in most cases a peritonitis, intrapelvic or local in character, and not a cellulitis; that para- and peri-metritis were misleading and confusing terms, hence should be dropped; and that the so-called pelvic abscess was a sequence of salpingitis, ovaritis, or peritonitis, not a primitive accumulation in the areolar tissue itself.

The tentative management in these cases, rest, counter-irritation, hot sitz baths, vaginal douches, and attention to the digestive organs and general health, resulted in only temporary improvement, or in cure in a very small percentage. Those reported cured were generally, if the history could be known, subject to repeated relapses; and a frequently recurring pelvic peritonitis usually indicated leaky tubes. Electricity, too, had disappointed its most sanguine advocates and need not be considered.

In conclusion, he asserted that if these views be accepted, the logical deduction was to watch the early manifestations of the disease carefully, that competent surgical skill be invoked before the damage to important structures became too great to justify the expectation of successful operation. —*Arch. Gyn. Obs. and Ped.*

Disinfection in Great Cities.—The Paris Municipality has recently provided three disinfecting ovens where the public can have bed-clothes, wearing apparel, etc., disinfected free of charge on applying at any *mairie*, cemetery, or municipal ambulance station. Medical practitioners are supplied by the authorities with packets of postcards, the despatch of one of which will cause steps to be taken with the least possible delay for the carrying out of any required disinfection. A special conveyance, hermetically closed and under the care of attendants wearing a distinctive uniform, is sent to the house indicated. After disinfection the things are brought back in a different vehicle.

Perforation of Uterus by Sound, and Fatal Sublimate Poisoning.—Dr. Gebhard (*Nouvelle Arch. d'Obstét. et de Gynéc.*, August, 1891; *British Medical Journal*) recently observed a patient who had been under treatment from November 5, 1890, for gonorrhœa. A 1-5000 sublimate solution was thrown up, by means of a Bozeman's sound, at intervals of a day or two, in the out-patient room. On the third occasion, November 11, immediately after the introduction of the sound, the patient complained of pain. After nearly a pint of solution had been thrown up, the pain increasing, the injection was suspended. Vomiting and faintness came on rapidly. Perforation of the uterus and entrance of the solution into the peritoneal cavity was diagnosed. An opium suppository was administered. Dysenteric diarrhœa followed in a few hours. On the next day complete anuria set in. Mucus was continuously discharged from the rectum, which protruded and was ulcerated. Stomatitis, with a trifling amount of salivation, began on the third day. The patient died on the eighth day. Acetate of potash was given to promote diuresis, but completely failed in its object; pilocarpin caused profuse concentrated perspiration, which exhausted the patient and irritated her skin. Opium had been suspended early in the course of the case, Dr. Gebhard believing that it was contraindicated in dysentery. At the necropsy, two complete perforations of the fundus uteri were found, lying close together, near the right tube. The peritoneum was inflamed; the entire large intestine and 4 inches of the ileum were ulcerated and in parts sloughy. One ulcer had perforated the sigmoid flexure. In the tubuli uriniferi were found cretaceous deposits of the kind described as occurring in the kidneys of patients dead from mercurial poisoning. Dr. Gebhard dwells at length on the pathology of this condition. It appears certain that stomatitis and salivation, which follow so sharply on an overdose of mercury by inunction or friction, are not the first symptoms in poisoning by mercurial injections used after childbirth. In that case diarrhœa is the earliest sign, and it rapidly becomes mucous, sanious, and ultimately fetid. It represents gangrenous dysentery. The next symptom is a marked diminution in the excretion of urine, often ending in entire suppression. Stomatitis follows third, and may be severe, but salivation is not constant, even in fatal cases. The temperature is subnormal. In the case above related, where there was acute traumatic peritonitis at the beginning, the temperature was high for a few days, but fell below normal when the symptoms of poisoning began to predominate. Erythema is rare.—*Arch. Gynecology, Obstetrics and Pediatrics.*

Tubo-Ovarian Disease, *Ichthyol in*.—At a meeting of the Turin Academy of Medicine, on June 12, Dr. Albertoletti reported (*Riformo Medica*) the results of an extended trial of ichthyol made by him in the Maria Victoria Hospital on a number of women suffering from salpingo-ovaritis, endo-, peri-, and para-metritis, etc. He used almost exclusively the sulpho-ichthyolate of ammonium, which he gave internally in pills, or by inunction in the form of pomade, or by intra-uterine injection. He sums up the results obtained as follows: Resolution in the relatively short space of time of endometritis in cases which had proved refractory to the most active treatment; absorption (not always complete, however) of peri- and para-metritic exudations; cessation of pain in every case without exception. The remedy, according to Dr. Albertoletti, has this marked advantage over other remedies, that while at least equally efficacious, it is perfectly well borne in all cases, and can therefore be used when other forms of medication are inadmissible. Dr. Bergesio, in discussing the paper, confirmed Dr. Albertoletti's conclusions in every particular, and said that ichthyol seemed to be destined to solve many therapeutic problems relative to utero-ovarian disease.—*Archi. Gyn. Obs. and Ped.*

Instillations of Nitrate of Silver in the Treatment of Epididymitis.—Dr. Samuel Alexander calls attention to the value of instillations of nitrate of silver in the posterior urethra to prevent recurrence of the epididymitis, and to hasten the course of the original disease. He does not claim originality in this method, which he ascribes to Diday, but insists on its beneficial effects. His plan is to commence as soon as possible with the instillations. The patient is placed in bed, given a subcutaneous injection of morphine if the symptoms are very acute, and then with a Keyes' modification of the Ultzmann syringe an injection is given just within the membranous urethra. The strength of the solution should vary from 1 gr. to the ounce, if the symptoms are very acute, to 8 gr. to the ounce, and the injection must be repeated at intervals of 24 to 48 hours. During this treatment the testicle should be supported and poulticed with flaxseed. Later, the dry dressing of cotton wool, vaseline, and rubber tissue covering should be employed. The injections should be made soon after the patient has passed his water, so that there may be as little secretion as possible in the urethra. The advantages as summed up by Dr. Alexander are: (1) The lessened liability to a relapse. (2) The shorter course of the disease. (3) The shortening of the duration of the accompanying urethritis, because treatment of the posterior urethra is continued during the existence of the epididymitis.—*Journal Cutaneous and Genito-Urinary Diseases.*

NECROLOGY.

DR. HOWARD MCCULLOUGH, of Fort Wayne, Ind., died at his father's home, on the morning of January 8, 1892, of chronic Bright's disease.

Thus ended a life that was full of brightest prospects. A near friend said of him: "He was an honest and true man. Though a sufferer for years from the disease of which he died, he confided to no one his physical condition until the inroads made by the disease could not longer be disguised. He kept at work manfully, earnestly, and unremittingly, although the shadow of this terrible disorder was ever impending."

He was born January 28, 1858; grew to manhood in Fort Wayne; graduated from its public schools, then graduated from the University of Pennsylvania Medical School in 1882, and immediately returned to his native city to practice his profession. He in time became a member of the American Medical Association, the Indiana State Medical Society, the Chicago Medical Society, and the Fort Wayne Academy of Medicine, and contributed a number of papers to some of these societies of unusual interest and value. Three years ago he was appointed to the Chair of Physiology in the Fort Wayne Medical College, a position he filled very acceptably till his death.

He was always seeking to fit himself more fully for his life's work; was an earnest, painstaking student, at one time spending several months in this city in the study of some special branches. He made many and true friends. He was such a quiet, unobtrusive, gentlemanly man, of such refined and noble instincts, that it was a rare pleasure to know him, and the world is better for his having lived and labored in it.

SIR GEORGE PAGET, M.D., died in London, January 29, in his 83rd year. He was a past-president of the British Medical Association and of the General Medical Council of Great Britain. In 1872, he was appointed Regius Professor of the Practice of Physic at Cambridge University and attending physician at the Addenbrooke Hospital. He was titled Knight (K.C.B.), about ten years ago, for his medical and scientific attainments.

BOOK REVIEWS.

TRANSACTIONS OF THE STATE MEDICAL SOCIETY OF WISCONSIN, for the year 1891.

The medical profession of Wisconsin is to be congratulated on the high character of its State Society as indicated by this volume of transactions. The short paper of Dr. Fox, of Madison, on Diphtheria, elicited a discussion of this important subject which is a model of such work. We believe that the object of a good society is not to produce long winded essays on obscure subjects, but to bring out the ideas and experience of men, widely separated from each other, on subjects of every day importance. We hesitate to select for special mention any of the papers, where all are so good, but believe that the short article by Dr. Burgess, of Milwaukee, should be noticed.

This paper, entitled "Something about Sepsis," is exceedingly thoughtful, very comprehensive, clear, and pointed. It deserves a wide circulation.

A TEXT BOOK OF PHYSIOLOGY. By M. FOSTER. Fourth American from fifth English edition. Revised, enlarged, and illustrated. Philadelphia: Lea Brothers & Co., 1891.

Dr. Foster's magnificent work is so well known that we feel that any words of praise we might give it would hardly enhance its already well-established reputation.

It gives us pleasure, however, to announce this new edition, which is not simply a reprint of the last, but embodies the latest additions to physiology.

We have always been disappointed, however, in the arrangement of the book, the chapter on Digestion being peculiarly involved, making it difficult to find what is wanted. This difficulty might have been partially overcome by a suitable index. This usually prominent feature of American medical books is here very deficient. The American editor would have done well if he had taken as his sole task the preparation of a complete index for the work.

MISCELLANY.

KINGS COUNTY MEDICAL ASSOCIATION.—At the last annual meeting of this Society, an election of officers for the year 1892 was had as follows: J. D. Sullivan, President; T. M. Rochester, Vice-President; J. C. Bierwerth, Recording Secretary; L. A. W. Alleman, Corresponding Secretary; J. R. Vanderveer, Treasurer; and T. M. Lloyd, Executive Committee.

THE EIGHTH ANNUAL MEETING of the Fifth District Branch of the New York State Medical Association will be held in Brooklyn, on Tuesday, May 24, 1892. All Fellows desiring to read papers will please notify the Secretary, E. H. Squibb, M.D., P. O. Box 94, Brooklyn.

WHOLESALE PAUPERIZING.—One of our exchanges states that over half a million people in New York City alone annually obtain medical services gratuitously. Forty per cent. of these are able to pay. The wholesome old American dread of being pauperized by hospital treatment has been replaced by a degrading desire to get something out of the government or charitable persons. Unless such pauperizing is checked, serious political consequences must ensue.—*Med. Rec.*, St. Louis.

OFFICIAL LIST OF CHANGES in the Stations and Duties of Officers Serving in the Medical Department, U. S. Army, from January 30, 1892, to February 5, 1892.

Lieut.-Col. Joseph P. Wright, Surgeon U. S. A., is relieved from duty as attending surgeon at the Military Prison, Fort Leavenworth, Kan., and will repair to San Francisco, Cal., and assume the duties of acting assistant medical purveyor, taking charge of the medical purveying depot at that place, and relieving Lieut.-Col. George M. Sternberg, Surgeon U. S. A., who, upon being relieved, will proceed to Governor's Island, N. Y., and report in person to the commanding General, Dept. of the East, for duty as attending surgeon and examiner of recruits in New York City.

First Lieut. Henry D. Snyder, Asst. Surgeon U. S. A., temporarily serving at Ft. Reno, Oklahoma Ter., is assigned to duty at that post.

First Lieut. Samuel R. Dunlop, Asst. Surgeon, is relieved from duty at Ft. Sill, Oklahoma Ter., and assigned to duty at Ft. Supply, Ind. Ter., where he is now temporarily serving.

The order relating to Capt. Aaron H. Appel and First Lieut. Julian M. Cabell, Asst. Surgeons U. S. A., is suspended until further orders.

Major John Brooke, Surgeon U. S. A., is granted leave of absence for twenty-eight days.

Capt. Aaron H. Appel, Asst. Surgeon U. S. A., granted leave of absence for twenty-three days.

Official List of Changes in the Medical Corps of the U. S. Navy, for the Week Ending February 6, 1892.

Surgeon J. L. Neilson, detached from training ship "Portsmouth," and granted two months' leave of absence.